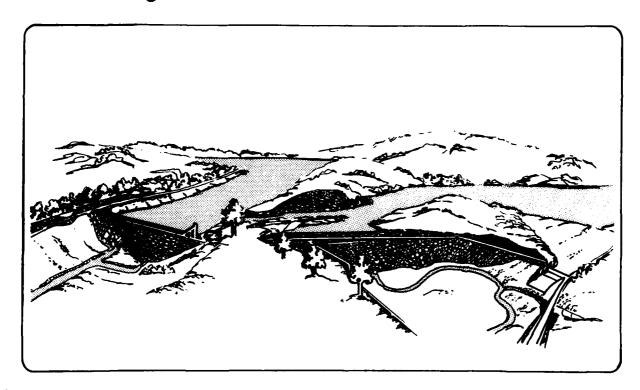
GÉOLOGICAL SURVEY HARRISBURG PA WATER RESOURCES DIV F/G 8/8 PREIMPOUNDMENT WATER QUALITY IN THE TIOGA RIVER BASIN, PENNSYLV--ETC(U) MAR 81 J R WARD USGS/WRD/WRI-81/068 NL AD-A101 909 UNCLASSIFIED 0 F 2 AD A 101909

LEVEL Preimpoundment
Water Quality
in the
Tioga River Basin,
Pennsylvania and New York



U.S. GEOLOGICAL SURVEY WATER RESOURCES INVESTIGATIONS 81-1

Prepared in cooperation with the U.S. Army Corps of Engineers, Baltimore District Susquehanna River Basin Commission

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The water quality in the Tioga River basin was studied from September 1973 to September 1978, prior to impoundment by the U.S. Army Corps of Engineers. Results of the investigation will be used in the operation of three reservoirs that were in the final stages of construction in late 1979.

Annual suspended-sediment yields for the basin averaged 575 tons per square mile. Mill Creek near Tioga and the Cowanesque River upstream from Nelson were the smallest contributors. The suspended-sediment yields for some sites on the Tioga River and Crooked Creek were affected by reservoir construction.

Acid-mine drainage in the headwaters of the Tioga River increased the levels of sulfate, trace elements, and specific conductance, and decreased alkalinity and pH. most of the river's length, nutrient levels are generally low, but high enough to support biological activity.

A discussion of the water quality of the three reservoirs after completion is included. Also included is a discussion of the possible effects of the reservoirs on existing water quality in the Tioga River.

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b. Identifiers/Open-Ended Terms

Tioga River, Susquehanna River basin, Pennsylvania, New York

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PREIMPOUNDMENT WATER QUALITY IN THE TIOGA RIVER BASIN,

PENNSYLVANIA AND NEW YORK

By Janice R./Ward

U.S. GEOLOGICAL SURVEY

Water Resources Investigations 81-1

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0.3048	meter (m)
1.609	kilometer (km)
4,407	square meter (m²)
1,233	cubic meter (m ³)
2.590	square kilometer (km ²)
)	cubic meter per second
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	cubic meter per second
	per square kilometer
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PREIMPOUNDMENT WATER QUALITY IN THE TIOGA RIVER BASIN, PENNSYLVANIA AND NEW YORK

By Janice R. Ward

ABSTRACT

The water quality in the Tioga River basin was studied from September 1973 to September 1978, prior to impoundment by the U.S. Army Corps of Engineers. Results of the investigation will be used in the operation of three reservoirs that were in the final stages of construction in late 1979.

Annual suspended-sediment yields for the basin averaged 575 tons per square mile. Mill Creek near Tioga and the Cowanesque River upstream from Nelson were the smallest contributors. The suspended-sediment yields for some sites on the Tioga River and Crooked Creek were affected by reservoir construction.

Acid-mine drainage in the headwaters of the Tioga River increased the levels of sulfate, trace elements, and specific conductance, and decreased alkalinity and pH. For most of the river's length, nutrient levels are generally low, but high enough to support biological activity.

Tioga Lake will be acidic and probably stratify chemically and thermally. High concentrations of heavy metals will accumulate near the bottom of the lake where oxidation of these metals will produce dissolved oxygen levels significantly lower than those near the surface. Hammond and Cowanesque Lakes will be alkaline and thermally stratified. They will probably support a warm-water fishery.

The addition of Hammond Lake water to the outflow from Tioga Lake will probably improve the water quality of the Tioga River below Tioga Dam. Releases from the multi-level withdrawal system will allow the water quality of the river to stabilize, and not be subject to the extreme low-flow conditions that have historically damaged aquatic life.

INTRODUCTION

The U.S. Geological Survey, in cooperation with the U.S. Army Corps of Engineers, and aided by the Susquehanna River Basin Commission, investigated the water quality of the Tioga River basin, Pennsylvania. The study, made from September 1973 to September 1978, was designed to evaluate water quality at various sites prior to impoundment. Results of the investigation will aid the Corps of Engineers in designing the operation of three reservoirs that were in the final stages of construction in late 1979.

Description of the Tioga River Basin

In Pennsylvania, the Tioga River flows southwestward from the Bradford County - Tioga County line toward Blossburg (fig. 1). From Blossburg it flows northward and joins the Cohocton River near Corning, N.Y., to form the Chemung River, a tributary to the Susquehanna River.

The part of the Tioga River basin included in this study encompasses 771 mi², 690 mi² in Pennsylvania and 81 mi² in New York. The basin is characterized by steep, rounded hills, and wide valleys typical of the Allegheny Plateau physiographic province. The geologic formations are comprised of sands and gravels of Pleistocene age; sandstones, shales, and bituminous coals of Pennsylvanian age; and sandstones, shales, and conglomerates of Devonian age. The coals, belonging to the Pottsville and Allegheny Formations, are confined to an area around Blossburg, in the headwaters of the Tioga River. Coal has been both strip and deep mined, and many older mines remain unreclaimed. Some limited strip mining is currently underway near Blossburg.

Average annual precipitation measured near Wellsboro, Pa., is about 38 inches, based on 70 years of record. The average annual precipitation for the 5-year period of the study was 38.1 inches. Air temperatures averaged 44°F for the study period, 4° lower than the 70-year average.

Agriculture and forestry are the major land uses. Most of the population is scattered throughout rural areas or in small towns; Mansfield, Westfield, and Elkland are the principal communities.

Mine drainage enters and degrades the water quality of the Tioga River near Blossburg. The effects of this degradation have been observed from Blossburg to Corning, N.Y., 38 miles downstream (Rhodes and Davis, 1968; Barker, 1972; U.S. Army Corps of Engineers, 1974; Ward, 1976). Within the study area, there are three major tributaries, Mill Creek (near Tioga), Crooked Creek, and the Cowanesque River, which are unaffected by mine drainage. These tributaries help neutralize and dilute the acidmine drainage in the Tioga River. Land use in Mill Creek basin (near Tioga) is mostly forested and agricultural. Both Crooked Creek and the Cowanesque River have some municipal and industrial inputs, but still have reasonably good water quality.

Location and Description of Reservoirs

Three flood-control reservoirs (fig. 2), nearing completion in 1979, were designed to prevent floods like those that occurred in 1865, 1946, and 1972. Stage reduction below the reservoirs during storms will reduce damages in flood-prone areas along the Tioga, Chemung, and Susquehanna Rivers. The physical characteristics of the reservoirs are given in table 1.

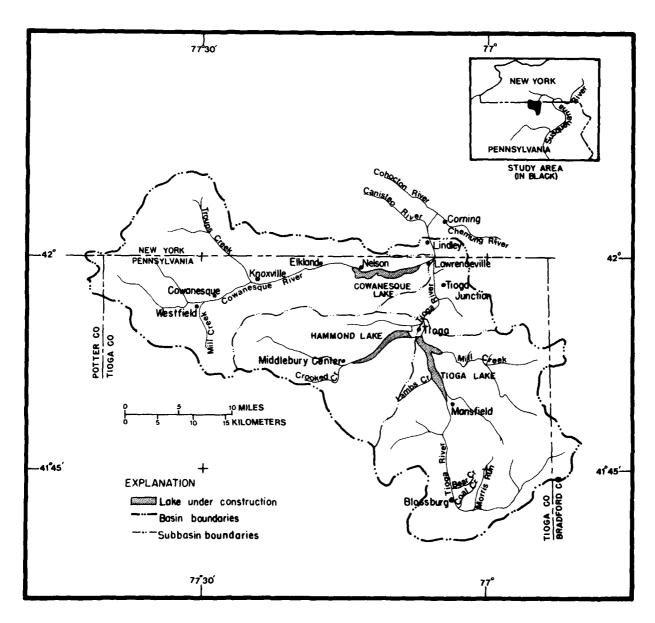


Figure 1.--The Tioga River basin above Lindley.

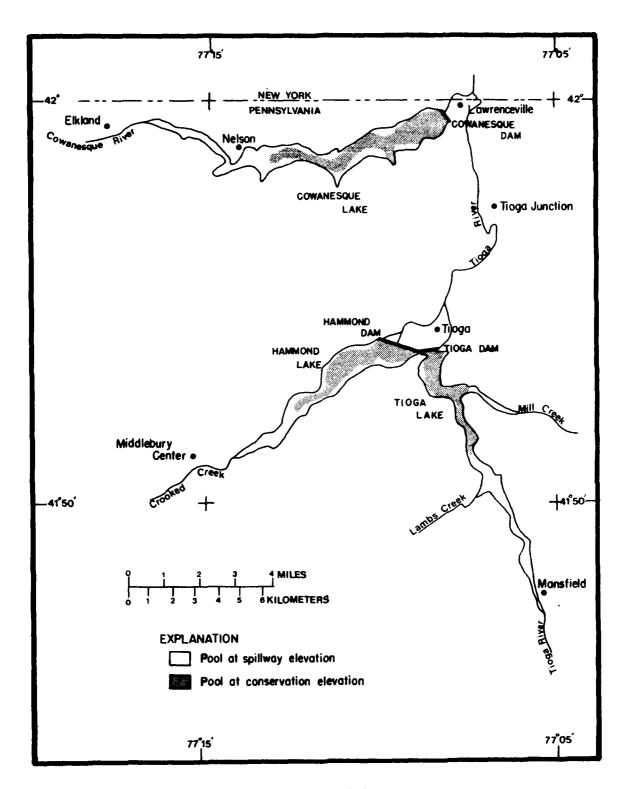


Figure 2.--Tioga, Hammond, and Cowanesque Lakes.

Table 1.—Physical characteristics of Tioga, Hammond, and Cowanesque Lakes

	Tioga Lake	Hammond Lake	Cowanesque Lake
Drainage area (mi²)	280	122	298
Pool at conservation elevation:			
Surface area (acres)	480	660	410
Storage (acre-ft)	9,600	8,800	6,975
Mean depth (ft)	20	13	17
Maximum depth (ft)	50	39	45
Pool at spillway elevation:			
Storage (acre-ft)	62,000	63,000	89,000

Tioga Lake is being constructed on the Tioga River, 1.7 miles upstream from the confluence with Crooked Creek, and, after completion, will extend about 10 miles upstream to Mansfield at spillway elevation. The major inflows to the lake are the Tioga River and Mill Creek (near Tioga). Tioga Lake's outlet to the Tioga River will be at the west abutment of Tioga Dam and will be equipped for multilevel withdrawal.

Hammond Lake is being constructed on Crooked Creek, 3.3 miles upstream from the mouth, and, after completion, will extend about 8 miles upstream toward Middlebury Center at spillway elevation. Crooked Creek is the major inflow to Hammond Lake. A small uncontrolled outlet in Hammond Dam will sustain flow in Crooked Creek below the dam. A connecting channel joining Tioga and Hammond Lakes will enable the lakes to be operated as a single flood control unit. During periods of normal streamflow most of the discharge from Hammond Lake will be through the connecting channel into Tioga Lake. Flood flows will pass from Tioga Lake into Hammond Lake via the connecting channel and then to Crooked Creek via the emergency spillway.

Cowanesque Lake is being constructed 2.2 miles upstream from the mouth of the Cowanesque River and, after completion, will extend about 8 miles upstream toward Elkland at spillway elevation. The Cowanesque River is the major inflow to the lake. Outflow to the Cowanesque will be through a multilevel outlet works during normal flows and over an ungated spillway during flood flows.

SAMPLING NETWORK AND DATA-COLLECTION METHODS

Water-quality samples were collected and streamflow measured at various sites on a monthly basis from September 1973 to September 1978. All sampling sites and their drainage areas are listed in table 2; locations of the sites are shown in figure 3. The analyses performed on water samples collected are listed in table 3. Analyses were performed either on filtered water samples for dissolved concentrations or on unfiltered water samples for total concentrations, but at times both kinds of samples were analyzed.

Water samples were collected from stream cross sections using depth-integrated water-suspended sediment sampling techniques (Guy and Norman, 1970). Streamflow measurements were made according to techniques described by Buchanan and Somers (1976). Field measurements and sample preservation techniques used are described in Brown and others (1970) and Greeson and others (1977). Chemical samples were analyzed in the Geological Survey laboratories in Harrisburg, Pa., and Doraville, Ga. The methods used for the chemical analyses are documented in Skougstad and others (1979).

Specific conductance, water temperature, pH, and dissolved oxygen were monitored every 30 minutes for periods of 3 to 7 days at the four sampling sites nearest to the inflows of the reservoirs: Tioga River at Lambs Creek, Mill Creek near Tioga, Crooked Creek at Middlebury Center, and Cowanesque River at Nelson. The measurements were periodically made during different seasons by a NERA 4 water-quality monitor. The monitor was calibrated in the laboratory and adjusted as necessary after installation at the sampling site. Field measurements were made at the beginning and end of the period to check the calibration of the monitor.

STREAMFLOW CHARACTERISTICS

The streamflows in the Tioga River basin were assessed using long-term gaging records from four stations: Tioga River at Tioga (1939-78), Crooked Creek at Tioga (1954-74), Cowanesque River near Lawrenceville (1953-78), and Tioga River at Lindley (1931-78). Table 4 lists flow-duration data for these sites for both the long-term period of record and the short-term period of the study. Streamflow records for 1978 at Tioga River at Tioga are not included in table 4 because these records include flow diverted from Crooked Creek to the Tioga River during construction of the reservoirs. Also included in table 4 are duration tables for two gaging stations established in 1976: Tioga River near Mansfield and Tioga River at Tioga Junction.

Use of a brand name in this report is for identification purposes only and does not imply endorsement by the U.S. Geological Survey.

Table 2.--Sampling sites and drainage areas

Station identification number	Site name	Drainage area (mi ²)
01516350	Tioga River near Mansfield $arpsi$	153
01516820	Tioga River at Lambs Creek	186
01517500	Mill Creek near Tioga	76.8
01518000	Tioga River at Tioga 🖳	282
01518400	Crooked Creek at Middlebury Center!	71.5
01518500	Crooked Creek at Tioga $(1)^{\frac{1}{2}+2}$	122
01518550	Crooked Creek at Tioga (2)실	131
01518700	Tioga River at Tioga Junction $\mathcal U$	446
01518850	Cowanesque River at Westfield	53.0
01518860	Mill Creek at Westfield	13.0
01518870	Cowanesque River at Cowanesque	91.0
01519000	Troups Creek at Knoxville	66.5
01519500	Cowanesque River at Nelson	266
01520000	Cowanesque River near Lawrenceville $^{\underline{1}}$	298
01520500	Tioga River at Lindley!	771

UCaging station.

^{∠/}Crooked Creek at Tioga (1) had to be relocated 0.5 mile downstream because of construction to Crooked Creek at Tioga (2).

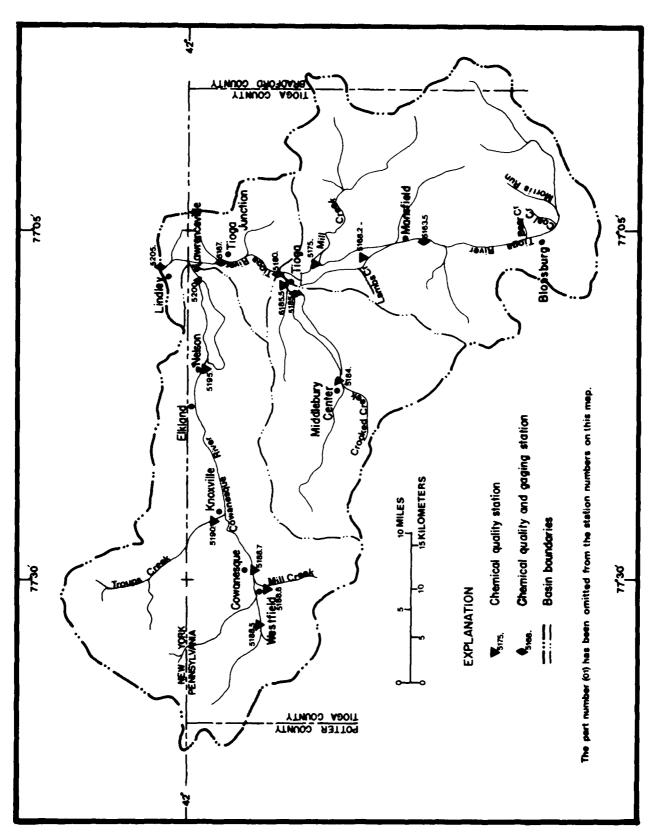


Figure 3.--Sampling sites.

Table 3.--Physical, chemical, and biological analyses performed on water samples

Field measurements		Chem	ical	analyses (mg/L)	
Streamflow (ft ³ /s) Water temperature (°C) pH (units)	Bicarbo Carbon Sulfat	ate	Ammo	ite-plus-nitrate nia nitrogen dahl nitrogen	nitrogen
Specific conductance (micromhos at 25°C)	Chlori Calciu	ก	Orth	l phosphorus ophosphate	
Alkalinity (mg/L as CaCO ₃) Acidity (mg/L as CaCO ₃) Dissolved oxygen (mg/L)	Magnes: Sodium Potass:		Susp	ended sediment	
Biological analyses		Chemi	cal a	nalyses (µg/L)	
Algal growth potential (mg/L)	Alumi	กนท	Lead	
Fecal coliform (colonies/100	mL)	Arsen	ic	Manganese	
Fecal streptococci (colonies	/100 mL)	Cadmi	um	Mercury	
Chlorophyll A (mg/L)		Chrom	ium	Selenium	
Chlorophyll B (mg/L)		Cobal	t	Silver	
Total phytoplankton (cells/m	L)	Coppe	r	Zinc	
Phytoplankton identification count (cells/mL)	and	Iron			

Table 4.--Flow-duration tables for six gaged sites

	Drainage area	Minimum	Stream	Streamflow, in cubic feet is equaled or exceeded	in cubic feet d or exceeded percentage of	c feet ceeded		per second, that the indicated time	chat	Maximum
Site name and period of record	(m1 ²)	(ft ³ /s)	95	90	73	2	2	25	12	(ft ³ /s)
Tioga River near Mansfield (1976-78)	153	14	19	31	07	43.	71	190	430	8,940
Tioga River at Tioga (1939-77) (1974-77)	282	4.5	17	24 43	48	59 62	130	370 320	790	59,000 33,000
Crooked Creek at Tioga (1) (1954-74)	122	1.8	4.3	6.3	13	15	35	110	270	21,000
Tioga River at Tioga Junction (1976-78)	946	26	37	09	66	110	180	360	940	17,900
Cowanesque River near Lawrenceville (1953-77) (1974-77)	298	0.8	6.0 21	10 25	27	36 38	94	290 300	690	43,700
Tioga River at Lindley (1931-78) (1974-78)	171	6.1	34	49	110	130	300	850 650	1,900	128,000 80,600

Regression techniques were used to relate monthly streamflows measured at the ungaged sites, Tioga River at Lambs Creek, Mill Creek near Tioga, Crooked Creek at Middlebury Center, and Cowanesque River at Nelson, to those at nearby gaged sites. The resulting regression coefficients are shown in table 5 in the following form:

$$\log y = \log a + b \log x \qquad (eq. 1)$$

Flow-duration tables for the ungaged sites (table 6), were calculated using flow-duration data from the gaged sites (table 4) and the regression coefficients in table 5. These data will be used in discussions of water-quality characteristics.

The streamflow measurements made at the time water-quality samples were collected are summarized in table 7. Samples were collected over a wide range of streamflow, but because of the monthly sampling schedule, there was not coverage over storms. Therefore, water-quality concentrations measured are not representative of stormflows.

WATER-OUALITY CHARACTERISTICS

Suspended Sediment

Water was sampled daily for suspended sediment at Tioga River at Lindley beginning in August 1974 (U.S. Geological Survey, 1975-79). The average yearly suspended-sediment yield for Tioga River at Lindley for water years 1975-78 is 575 tons/mi². Runoff from two storms during this period transported large amounts of sediment. The sediment yield during Hurricane Eloise, in September 1975, was about 260 tons/mi², and during a storm in June 1976 it was about 130 tons/mi². Particle-size data indicate that the average storm sample contains about 8 percent sand, 49 percent silt, and 42 percent clay.

Monthly suspended-sediment samples were collected at 14 other sites in the basin. Table 8 lists the maximum, minimum, and median suspended-sediment concentrations, discharges, and yields of the monthly samples. Because the data were collected monthly, stormflows were not sampled, and the actual true extreme and median suspended-sediment discharges may vary greatly from those shown. Mill Creek near Tioga and the Cowanesque River basin sites, except Lawrenceville, had the lowest suspended-sediment concentrations and yields. The sites on the Tioga River, Crooked Creek, and the Cowanesque River near Lawrenceville had high maximum concentrations. These high values were partly caused by construction of the reservoirs and adjacent highways at these sites.

Table 5.—Regression coefficients relating flow data from ungaged sites sites to flow data at gaged sites

χ	log a	Ą	x Streamflow measured at	Standard error	Number of observations
Tioga River at Lambs Creek	0.07	0.99	Tioga River near Mansfleld	0.04	12
Mill Creek near Tioga	- 68	1.03	Tioga River at Lambs Creek	.13	42
Crooked Creek at Middlebury Center	57	1.13	Crooked Creek at Tioga (1)	.12	10
Cowanesque River at Nelson	60*-	1.02	Cowanesque River near Lawrenceville	* 0 *	22

Table 6.--Flow-duration tables for four ungaged sites computed from flow relationships with nearby gages

		Streamflow, in cubic feet per second, that	reamflow, in cubic feet per second, the second, the second or exceeded the indicated	cubic	feet pe	r seco	ond, the	ıat
Site name and period of gaging record	Drainage	ដ	lagred pe	percentage of time	of ti	le til		
on which duration table is based	area $(m1^2)$ 95		06	75 70	2	50	50 25	2
Tioga River at Lambs Creek (1976-78)	186	22	35	45	67	80	80 210 480	480
Mill Creek near Tioga (1976-78)	76.8	5.0		8.2 10.6 11.5 19	11.5	19	52 120	120
Crooked Creek at Middlebury Center (1954-76)	71.5	1.4	1.4 2.2 4.9 5.7 15 55 150	6.4	5.7	15	55	150
Cowanesque River at Nelson (1953-77) (1974-77)	266	5.0 18	5.0 8.5 23 18 22 29	23 29	31 33	84	84 260 6 80 270 7	640

Table 7.--Range and median of monthly discharge measurements

		Instantane	Instantaneous streamflow (ft ³ /s)	$low (ft^3/s)$
Site name	Period of record	maximum	minimum	median
Tioga River near Mansfield	May 1975-Apr. 1976, Feb. 1978	669	28	242
Tioga River at Lambs Creek	Sept. 1973-Sept. 1978	1,780	29	149
Mill Greek near Tioga	Sept. 1973-Sept. 1978	473	6.3	45
Tioga River at Tioga $\frac{1}{2}$	Sept. 1973-Sept. 1977	4,220	30	205
Crooked Creek at Middlebury Center	Sept. 1973-Aug. 1974, Apr. 1976-Sept. 1978	453	3.3	28
Crooked Creek at Tioga (1)	Sept. 1973-Mar. 1975	811	10	99
Crooked Creek at Tioga (2)	Apr. 1975-Sept. 1978	260	.50	48
Tioga River at Tioga Junction	Sept. 1973-Sept. 1978	3,960	45	311
Cowanesque River at Westfleld	Sept. 1973-Aug. 1974	272	3.1	18
Mill Creek at Westfield	Sept. 1973-Aug. 1974	59	1.2	7.2
Cowanesque River at Cowanesque	Sept. 1973-Aug. 1974	240	7.6	33
Troups Creek at Knoxville	Sept. 1973-Aug. 1974	312	2.6	14
Cowanesque River at Nelson	Sept. 1973-Aug. 1974, Apr. 1976-Sept. 1977	1,430	16	136
Cowanesque River near Lawrenceville	Sept. 1973-Sept. 1977	1,400	17	180
Tioga River at Lindley	Sept. 1973-Sept. 1977	3,260	63	478

 $\frac{1}{2}$ The majority of streamflow was diverted from Crooked Creek at Tioga (2) to Tioga River at Tioga during the 1978 water year.

Table 8. -- Summary of instantaneous suspended-sediment data

					Suspen	Suspended sediment	ment	Y1	Yield
Site name	Period of record	Concentration (mg/L)	ration minimum	median	Discharge (tom	Discharge (ton/d)	nedian	(ton/d)/mi² maximum median)/mi² median
Tioga River at Mansfield	May 1975-Apr. 1976, Feb. 1978	389	1	15	734	0.05	12	4.8	0.078
Tioga River at Lambs Creek	Sept. 1973- Sept. 1978	336	-	14	612	.05	4.4	3.3	.024
Mill Creek near Tioga	Sept. 1973- Sept. 1978	77	1	7	27	• 00	• 05	.35	.001
Tioga River at Tioga≟	Sept. 1973- Sept. 1978	176	7	14	877	•05	8.5	3.1	.030
Crooked Creek at Middlebury Center	Sept. 1973-Aug. 1974, April 1976-Sept. 1978	115	-	9	93	• 00	.25	1.3	.003
Crooked Creek at Tioga (1)	Sept. 1973- March 1975	289	1	18	633	• 05	3.6	5.2	.030
Crooked Creek at Tioga (2)	April 1975- Sept. 1978	4,500	7	16	911	•05	2.1	7.0	.016
Tioga River at Tioga Junction	Sept. 1973- Sept. 1978	894	-	16	7,000	•05	13	16	.029
Cowanesque River at Westfield	Sept. 1973- Aug. 1974	21	-	2	15	•05	• 00	.28	.001
Mill Creek at Westfield	Sept. 1973- Aug. 1974	27	1	5	1.7	•00	• 00	13	* 00 *
Cowanesque River	Sept. 1973- Aug. 1974	32		2	47	•05	.13	.52	.001
Troups Creek at Knoxville	Sept. 1973- Aug. 1974	69	-	4	53	•00	.10	.80	•002
Cowanesque River at Nelson	Sept. 1973-Aug. 1974, Apr. 1976-Sept. 1977	612	-	9	1,980	.05	1.4	7.4	• 005
Cowanesque River near Lawrenceville	Sept. 1973- Sept. 1977	966	-	, •	2,740	.05	2.8	9.2	600.
Tioga River at Lindley	Sept. 1973- Sept. 1977	1,230	1	18	4,650	.05	12	0.9	.016

 $^{\perp}$ The majority of streamflow was diverted from Crooked Creek at Tioga (2) to Tioga River at Tioga during the 1978 water year.

The relations between streamflow and instantaneous suspendedsediment yields, based on monthly measurements, for the Tioga River sites (fig. 4), Mill Creek near Tioga and the Crooked Creek sites (fig. 5), and the Cowanesque River sites (fig. 6) have standard errors of estimate that range from 0.30 to 0.62. Figure 4 shows that when streamflow yield is 6 (ft³/s)/mi², suspended-sediment yields for the Tioga River varied from 0.88 (ton/d)/mi² at Tioga to 2.3 (tons/d)/mi2 at Mansfield. Sediment yields for the Tioga River at Lambs Creek, at Tioga Junction, and at Lindley averaged about 1.3 (tons/d)/mi² at the same streamflow yield. Variations between yields at the Mansfield and Tioga sites and those at the other three Tioga sites may be due in part to the large standard error at Mansfield (0.62), where only a small number of samples were collected, and the reduction of suspended-sediment yields in the Tioga River by the dilution provided by Mill Creek just upstream from Tioga. When streamflow was less than 2 (ft3/s)/mi2, all of the sites had approximately equal sediment yields.

Reservoir construction at Tioga on Crooked Creek temporarily raised sediment concentrations as shown in figure 5. Before construction began, the sediment yields of Crooked Creek at Tioga (1) were about three times those upstream at Crooked Creek at Middlebury Center for streamflow yields ranging from about 0.5 to 6 (ft³/s)/mi². During construction the sediment yields at Crooked Creek at Tioga (2) were about six times those observed at Middlebury Center, above the construction and near the inlet of the proposed reservoir.

Mill Creek near Tioga discharges significantly less sediment than the Tioga River or Crooked Creek. At streamflow yields of 6 (ft 3 /s)/mi 2 , sediment yield from the Mill Creek basin was 0.10 (tons/d)/mi 2 , only about 10 percent of the yield from the Tioga River basin.

Sediment yields of Mill Creek at Westfield (fig. 6) were smaller than those measured anywhere along the Cowanesque River, and are similar to those measured at Mill Creek near Tioga. The Cowanesque River at Cowanesque had a slightly higher yield than at Westfield, probably because of the influence of Mill Creek, which tends to dilute Cowanesque River at Westfield. The other four sites in the Cowanesque River basin downstream of Cowanesque yielded about five times more sediment than did Westfield or Cowanesque at streamflow yields of 6 (ft 3 /s)/mi 2 . The sediment yields at these four sites are similar to those measured at the Tioga River sites.

The data presented in tables 4 and 6 and in figures 4, 5, and 6 can be used to estimate probable suspended-mediment discharges into the three lakes. Through the use of a regression equation corresponding to the stream of interest, the suspended-mediment discharge at any flow can be found. The large standard errors of the logarithmic regression analyses probably result from the lack of sufficient storm coverage. Sediment discharges during storms can be best estimated by using data from Tioga River at Lindley, since data at this site were collected during storms.

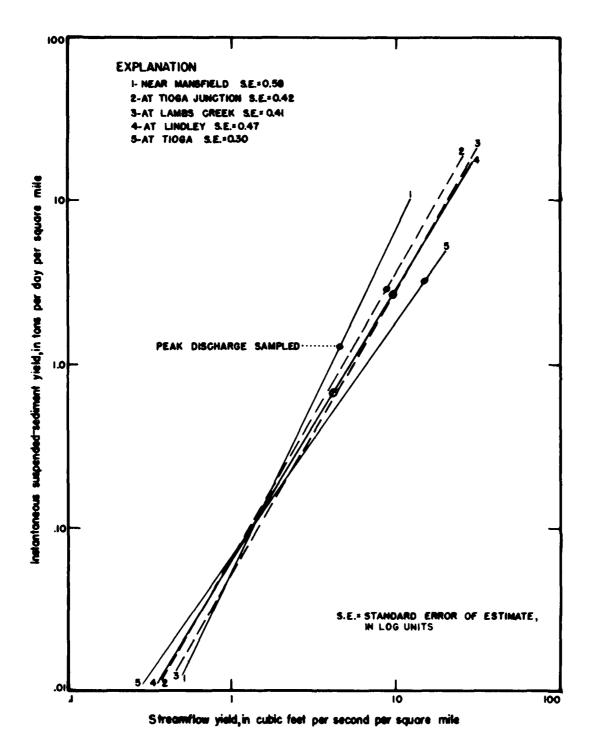
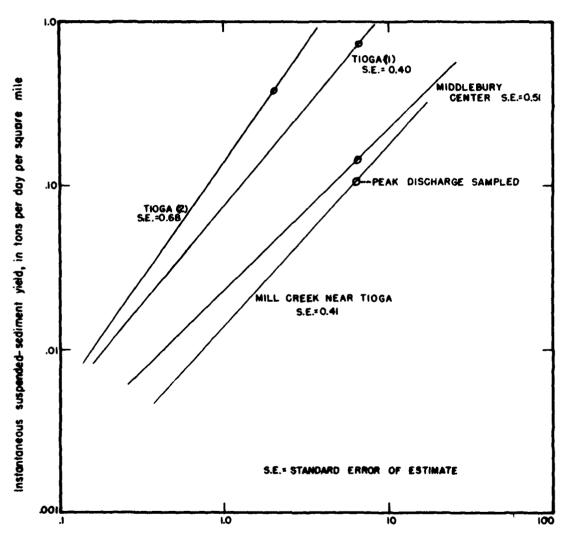
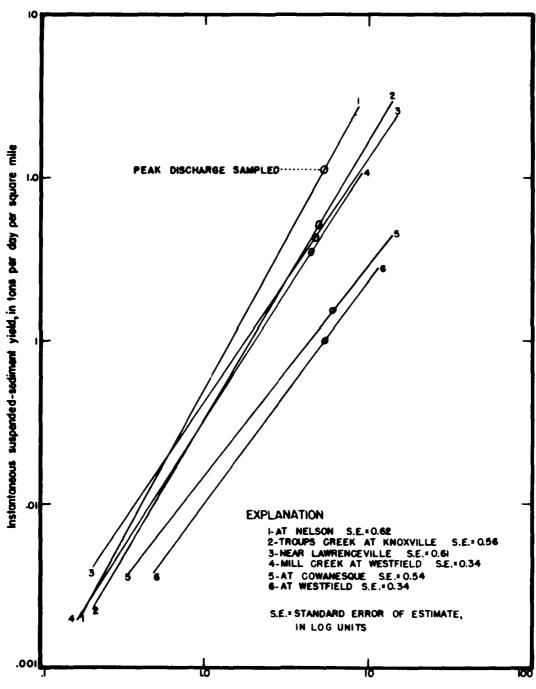


Figure 4.--Regression curves of streamflow and instantaneous suspended-sediment yields for Tioga River sites.



Streamflow yield, in cubic feet per second per square mile

Figure 5.--Regression curves of streamflow and instantaneous suspendedsediment yields for Mill Creek near Tioga and Crooked Creek sites.



Streamflow yield, in cubic feet per second per square mile

Figure 6.--Regression curves of streamflow and instantaneous suspendedsediment yields for Cowanesque River sites.

Specific Conductance and Major Dissolved Ions

The constituents discussed in this section are specific conductance, calcium, magnesium, sodium, potassium, sulfate, chloride, and dissolved oxygen. Tables 9 and 10 summarize the data. Because dissolved oxygen was near saturation at all sites during the monthly measurements, the data are not included in the tables. The shallow streams were aerated rapidly in riffle areas, replacing any oxygen consumed by chemical or biological oxygen demands. Diel fluctuations of dissolved oxygen at selected sites are discussed later.

Specific conductance values were highest at the upper Tioga River sites because of acid-mine discharges into the headwaters. The maximum specific conductance measured at the Tioga River near Mansfield was 608 $\mu mho/cm$, and the median was 231 $\mu mho/cm$. Dilution by Mill Creek (near Tioga) decreased the median value at Tioga River at Tioga Junction to 190 $\mu mho/cm$ and the maximum almost by half, to 364 $\mu mho/cm$. High specific conductances in the Cowanesque River basin were measured at Mill Creek at Westfield (368 $\mu mho/cm$) and Cowanesque River at Cowanesque (572 $\mu mho/cm$). The Cowanesque River at Lawrenceville had a median specific conductance of 124 $\mu mho/cm$, which was slightly higher than that measured just upstream of the Tioga River at Tioga Junction (102 $\mu mho/cm$). Because of this, the Cowanesque River had relatively little impact on the Tioga River in terms of specific conductance.

Dissolved sulfate concentrations were highest in the upper Tioga River because of acid-mine discharges, and were decreased by dilution with water from Mill Creek (near Tioga), Crooked Creek, and the Cowanesque River. Both the maximum and median levels of sulfate were reduced by half on the Tioga River between Mansfield (maximum 250 mg/L) and Lindley (maximum 110 mg/L).

The Cowanesque River was the largest contributor of dissolved chloride in the basin, probably because of industrial activity. The maximum concentration measured was 93 mg/L at Cowanesque. Background levels of chloride measured along the Tioga River increased between Tioga River at Tioga Junction and Tioga River at Lindley because of the contributions from the Cowanesque River; maximum levels increased from 10 to 20 mg/L, and median levels were raised from 5.5 to 8.5 mg/L.

Calcium, magnesium, sodium, and potassium were nearly equivalent at the six sites sampled (table 10). Observed concentrations indicated moderately hard water. The concentrations of these constituents are inversely related to streamflow, and the logarithmic regression coefficients are given in table 11.

Table 9. -- Summary of specific conductance, dissolved sulfate, and chloride data

	David of record	Specif (micro	Specific conductance (micromho/cm at 25°C)	ance 25°C)	(m1111g	Sulfate grams per	liter)	(millig	Chloride (milligrams per liter)	liter)
Tioga River near Mansfield	May 1975-Apr. 1976, Feb. 1978	809	i i	231	250		100	8.5	3.0	4.2
Tioga River at Lambs Creek	Sept. 1973-Sept. 1978	587	109	246	260	28	86	13	2.0	5.8
Mill Creek mear Tioga	Sept. 1973-Sept. 1978	214	79	148	28	8.2	11	01	2.3	5.5
Tioga River at Tioga $^{\underline{1}J}$	Sept. 1973-Sept. 1978	429	105	194	188	27	89	12	2.1	0.9
Crooked Creek at M1ddlebury Center	Sept. 1973-Aug. 1974, Apr. 1976- Sept. 1978	255	85	179	25	13	18	13	2.2	7.6
Crooked Creek at Tioga (1)	Sept. 1973-Mar. 1975	221	1111	146	28	15	19	10	1.9	5.0
Crooked Creek at Tioga (2)	Apr. 1975-Sept. 1978	259	85	172	28	14	18	10	2.0	6.2
Tioga River at Tioga Junction	Sept. 1973-Sept. 1978	364	102	190	150	22	53	10	2.1	5.5
Cowanesque River at Westfield	Sept. 1973-Aug. 1974	204	88	122	23	12	16	19	2.0	4.4
Mill Creek at Westfield	Sept. i973-Aug. 1974	368	129	206	32	7.1	70	36	5.0	13
Cowanesque River at Cowanesque	Sept. 1973-Aug. 1974	572	114	220	42	17	25	93	4.0	54
Troups Creek at Knoxville	Sept. 1973-Aug. 1974	239	124	161	30	16	22	13	0.4	7.5
Cowanesque River at Nelson	Sept. 1973-Aug. 1974, Apr. 1976- Sept. 1977	393	133	220	43	5.3	54	67	5.1	91
Cowanesque River mear Lawrenceville	Sept. 1973-Sept. 1977	375	124	194	39	14	25	47	5.0	12
Tioga River at Lindley	Sept. 1973-Sept. 1977	359	118	191	110	21	77	20	4.0	8.5

 1 Data from 1978 water year were not included because of diversion of Crooked Creek water to Tioga River at Tioga.

Table 10. -- Summary of dissolved calcium, magnesium, sodium, and potassium data collected in 1978

	Calc	Calcium (mg/L	1.	Magn	Magnesium (mg/L	/L)	So	Sodium (mg/L	1.)	Pota	Potassium (mg/	(1)
Site name	maximum	minimum	median	maximum	minimum	median	maximum	maximum minimum	median	maximum	minimum	median
Tioga River at Lambs Creek	77	10	56	25	4.5	13	7.3	2.6	5.2	2.4	1.2	1.7
Mill Creek near Tloga	28	9.2	18	5.1	1.6	3.2	5.0	2.2	3.8	2.3	1.4	2.0
Tiogs River at Tiogal	38	10	23	17	3.2	7.6	6.8	2.4	4.5	2.4	1.3	1.8
Crooked Creek at Middlebury Center	35	10	50	4.7	1.6	3.2	=	2.5	5.0	2.5	1.7	2.0
Crooked Creek at Tioga (2)	36	9.2	21	7.9	1.6	3.9	7.6	2.6	5.8	2.5	1.4	2.0
Tiogs River at Tiogs Junction	37	9	24	15	2.9	9.2	7.0	2.4	4.6	2.3	1.4	1.6

Data are affected by diversion of Crooked Creek water to Tioga River at Tioga.

Table 11.—Regression coefficients for the logarithms of streamflow to specific conductance, sulfate, chloride, calcium, magnesium, sodium, and potassium

Site	name	log a	ь	Standard error	Number of observation
Tioga River ne	ar Mansfield				
x	<u>y</u>				
streamflow	specific conductance sulfate chloride	3.37 3.13 1.30	-0.44 53 29	0.07 .12 .09	13 13 13
Tioga River at	Lambs Creek				
<u>x</u>	¥				
streamflow	specific conductance sulfate chloride calcium magnesium sodium potassium	3.22 2.99 1.46 2.13 2.00 1.22 .56	37 45 31 35 42 26 15	.07 .11 .11 .04 .05 .08	53 53 53 7 7 7
Mill Creek nea	r Tioga				
<u>x</u>	¥				
streamflow	specific conductance sulfate chloride calcium magnesium sodium potassium	2.45 1.21 1.06 1.57 .88 .84	18 .02 20 20 25 19 12	.05 .09 .11 .12 .07 .05	49 49 48 8 8 8
Tioga River at	Tioga				
×	ĭ				
streamflow	specific conductance sulfate chloride calcium magnesium sodium potassium	3.09 2.89 1.37 2.11 1.96 1.24	33 44 26 31 44 24	.06 .09 .12 .03 .11 .03	47 47 47 8 8 8 8
Crooked Creek	at Middlebury Center				
<u>*</u>	ĭ				
streamflow	specific conductance sulfate chloride calcium magnesium sodium potassium	2.52 1.32 1.23 1.58 .78 1.16	19 05 29 19 21 31 08	.06 .09 .11 .13 .05 .08	32 32 32 8 8 8
Crooked Creek	at Tioga (1)				
<u>x</u>	Y				
streamflow	specific conductance sulfate chloride	2.45 1.22 1.09	14 .03 20	.05 .06 .14	18 18 18
Crooked Creek	at Tioga (2)				
<u>*</u>	1				
streamflow	specific conductance aulfate chloride calcium magnesium sodium potassium	2.56 1.36 1.14 1.49 .72 .85	19 05 21 29 30 28 12	.05 .05 .09 .11 .07 .09	27 27 27 7 1

Table 11.--Regression coefficients for the logarithms of streamflow to specific conductance, sulfate, chloride, calcium, magnesium, sodium, and potassium--(Continued)

Tioga River at					
	Tioga Junction				
<u>x</u>	y				
streamflow	specific conductance	2.98	-0.28	0.05	55
	sulfate	2.64	35	.11	55
	chloride	1.46	27	.09	55
	calcium	2.13	32	.02	8
	magnesium	1.89	40	.07	8
	sodium	1.25	25	.04	8
	potassium	.43	08	.06	8
Cowanesque Rive	er at Westfield				
x	ሂ				
streamflow	specific conductance	2.33	16	.05	10
	sulfate	1.15	.04	.09	10
	chloride	- 1.15	38	.22	10
Mill Creek at V	Westfield				
x	ሂ				
streamflow	specific conductance	2.52	~ .25	.04	10
	sulfate	1.38	+ .05	. 09	10
	chloride	1.51	46	.06	10
Cowanesque Rive	er at Cowanesque				
×	¥				
streamflow	specific conductance	2.99	37	.10	10
	sulfate	1.79	23	.12	10
	chloride	2.51	70	.17	10
Troups Creek a	t Knoxville				
π	¥				
streamflow	specific conductance	2.44	13	.04	10
	sulfate	1.36	02	. 09	10
	chloride	1.04	16	. 09	10
Cowanesque at 1	Ne lson				
x	¥				
streamflow	specific conductance	2.82	23	.06	24
	sulfate	1.85	22	. 06	24
	chloride	2.20	48	. 12	24
Cowanesque Rive	er near Lawrenceville				
x	¥				
atreamflow	specific conductance	2.89	- ,26	. 05	47
	sulfate chloride	1.73	16 52	.06	47 47
Tioga Rivet at			,,,-		
×	y Y				
	_	2.00	2.7	04	40
streamflow	specific conductance sulfate	3.02 2.51	27 32	. 06 . 11	49 48
	chloride	1.97	38	.09	49

Duration tables of specific conductance and sulfate concentration were computed for 10 sites (table 12), based on the regression analyses and flow-duration tables for each site. These data summarize the water quality at the inflows and outflows to each reservoir and at the down-stream limit of the study.

pH, Carbonate, and Bicarbonate

The alkalinity and acidity of a water sample are measures of its buffering capacity, or the ability to assimilate additions of acid or base without a corresponding change in pH. Carbonate, bicarbonate, and carbonic acid comprise the equilibrium that controls the buffering capacity of the water in many streams, including the Tioga River basin.

A water sample that has a pH between 4.5 and 8.3 contains both alkalinity and acidity. If the pH is greater than 8.3, the sample contains only alkalinity, as a mixture of carbonate and bicarbonate. If the pH is less than 4.5, only acidity, which can be a combination of carbonic, sulfuric, and other acids, and many types of mineral complexes, is present.

Once the alkalinity and acidity of a water sample are measured, the net alkalinity of the sample can be computed as follows:

Net alkalinity = measured alkalinity - measured acidity $(mg/L \text{ as } CaCO_3)$ $(mg/L \text{ as } CaCO_3)$ $(mg/L \text{ as } CaCO_3)$

A positive net alkalinity indicates that the water sample is more alkaline than acidic, and a negative net alkalinity indicates that a water sample is more acidic than alkaline.

Data collected for the Tioga study are summarized in table 13. As expected, the pH and net alkalinity of the Tioga River are lowest near its headwaters due to acid-mine drainage from coal mines near Blossburg, but increase in a downstream direction. The major tributaries to the Tioga River are alkaline and help to neutralize and dilute the acid-mine discharge. The minimum pH necessary to sustain a warm-water fishery is 6.0 (Moran and Wentz, 1974). This pH was not maintained at all times anywhere in the Tioga River basin above Lindley.

Table 12. -- Duration tables for specific conductance and sulfate concentration for 10 sites

				Value	Value of	param he in	Value of parameter which is equalled or exceeded the indicated percentage of time	ich i	s equ	te of	tine			
	afcr	Speci	fic c	Specific conductance, in micromhos per centimeter at 25°C	tance	, in	5°C		Sulf	ate o	conce	Sulfate concentration,	lon,	
Site name and period of flow record	95	90	75	70	20	25	12	95	8	75	2	20	25	2
Tioga River near Mansfield (1976-78)	160	230	360	450	760	520	049	54	84	140	180	190	220	180
Tioga River at Lambs Creek (1976-78)	170	230	330	390	410	450	530	61	88	140	170	180	200	170
Mill Creek near Tioga (1976-78)	120	140	170	180	185	190	210	18	18	17	17	17	17	17
Tioga River at Tioga (1974-77)	140	180	260	310	320	360	330	77	61	86	130	130	150	130
Crooked Creek at Middlebury Center (1954-76)	130	150	200	240	250	280	310	16	17	18	19	19	70	19
Crooked Creek at Tioga (1) (1954-74)	130	150	170	190	200	220	230	19	19	18	18	18	18	18
Tioga River at Tioga Junction (1976-78)	140	180	220	260	260	300	350	07	26	11	84	87	001	84
Cowanesque River at Nelson (1974-77)	150	180	240	300	300	320	340	11	21	27	33	34	36	33
Cowanesque River near Lawrenceville (1974-77)	140	180	240	300	310	340	350	18	22	56	30	31	32	30
Tioga River at Lindley (1974-78)	150	150 180	250	290	300	310	320	32	32 41	99	72	74	78	72

Table 13. -- Summary of pH and net alkalinity data

Site name	Period of record	maximum	pH minimum	median	Net (mg	Net alkalinity (mg/L as CaCO ₃)	ty 03) median
Tioga River mear Mansfield	May 1975-Apr. 1976, Feb. 1978	5.6	3.0	4.2	-5	-83	-28
Tioga River at Lambs Creek	Sept. 1973-Sept. 1978	9.9	3.3	9.4	2	-160	-33
Mill Creek near Tioga	Sept. 1973-Sept. 1978	0.6	6.3	8.1	81	11	67
Tioga River at Tioga $^{ m L}/$	Sept. 1973-Sept. 1977	6.9	4.1	5.8	32	69-	-5
Crooked Creek at Middlebury Center	Sept. 1973-Aug. 1974, Apr. 1976-Sept. 1978	9.1	6.2	7.4	86	15	09
Crooked Creek at Tioga (1)	Sept. 1973-Mar. 1975	8.2	4.9	7.4	61	54	41
Crooked Creek at Tioga (2)	Apr. 1975-Sept. 1978	9.3	9.9	7.9	76	14	54
Tioga River at Tioga Junction	Sept. 1973-Sept. 1978	7.8	5.6	6.7	43	-5	10
Cowanesque River at Westfield	Sept. 1973-Aug. 1974	8.5	6.4	7.1	57	34	37
Mill Creek at Westfield	Sept. 1973-Aug. 1974	7.6	6.2	7.8	83	99	72
Cowanesque River at Cowanesque	Sept. 1973-Aug. 1974	8.7	6. 4	7.6	83	36	72
Troups Creek at Knoxville	Sept. 1973-Aug. 1974	8.8	6.1	7.8	85	55	9/
Cowanesque River at Nelson	Sept. 1973-Aug. 1974, Apr. 1976-Sept. 1977	9.3	6.4	7.8	86	28	28
Cowanesque River near Lawrenceville	Sept. 1973-Sept. 1977	9.1	6.3	7.8	96	23	87
Tioga River at Lindley	Sept. 1973-Sept. 1977	8.4	6.1	7.2	53	6	30

1/1978 data were not included because of flow diverted from Crooked Creek to Tioga River at Tioga.

Acid-base titration curves (fig. 7) were developed as each measurement of alkalinity and acidity was made. These curves provide additional information about the buffering capacity of the water sample by indicating partial alkalinities and acidities between the titration endpoints of 4.5 and 8.3. On the Lambs Creek curve for August 24, 1978, the sample had an initial pH of 3.8 and a total acidity of 94 mg/L. However, to raise the pH from 3.8 to 6.0 (the value necessary to support a warmwater fishery), only 63 mg/L of the 94 mg/L of total acidity would need to be neutralized. The Tioga Junction sample for August 8, 1977, had an initial pH of 7.7, a total alkalinity of 46 mg/L, and total acidity of 3 mg/L. The amount of alkalinity available to neutralize additional acidity without reducing the pH below 6.0 is 30 mg/L.

The fastest rate of change for both the Lambs Creek (acidic) and Tioga Junction (alkaline) curves occurs near the endpoints. The Tioga Junction curve is symmetrical, whereas the Lambs Creek curve has a portion between pH 4.5 and 5.0 that is relatively flat compared to the rest of the curve. A flattened curve was observed in all but the most weakly buffered samples containing acid-mine drainage. This buffering capacity between pH 4.5 and 5.0 had to be overcome before the sample could be neutralized, and it accounts for a significant part of the total acidity of the sample.

In addition to the acid-base titration curves developed at all sites, water samples collected monthly at Crooked Creek at Tioga were titrated into Tioga River at Tioga water samples. This was done to examine the change in pH when the two waters were mixed, in anticipation of the weir construction which will mix water from the two lakes when the reservoirs are operational. These titrations show that the buffering capacities of Crooked Creek and the Tioga River (at Tioga) vary proportionately. When Tioga River was strongly buffered by acid, Crooked Creek was strongly buffered by base. Conversely, when Tioga River was weakly buffered, so was Crooked Creek.

The buffering capacity of a sample can not always be estimated from its pH (fig. 8). On August 6, 1975, Crooked Creek had a pH of only 7.4, but a sample easily raised the pH of the Tioga River sample from 4.5 to 7.0. The same volume of Crooked Creek water used April 6, 1976, when the pH was 8.1, raised the pH of the Tioga River sample from 7.0 to 7.7.

According to streamflow records, the flows of Crooked Creek at Tioga are about one-quarter of those at the Tioga River at Tioga. Using the examples plotted in figure 8 as a guide, the mixing of the two streams at normal streamflows (25 percent Crooked Creek water) generally produces a pH between 5.5 to 7.0.

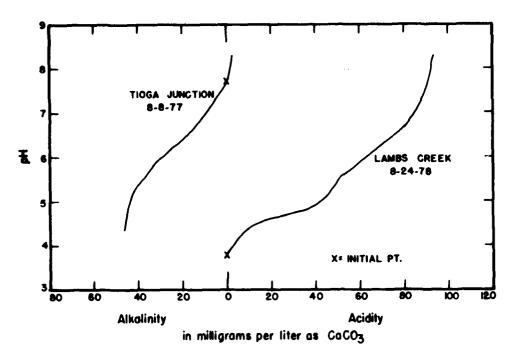


Figure 7.--Acid-base titration curves for two sites on the Tioga River.

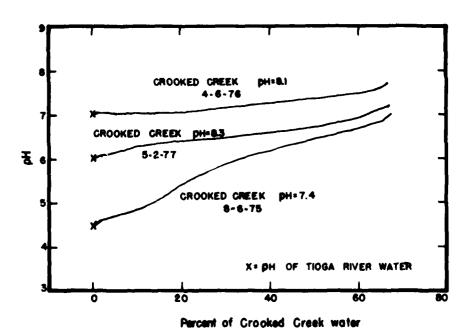


Figure 8.--Titration curve for Tioga River at Tioga with water from Crooked Creek at Tioga.

The relationship between the logarithms of net alkalinity and streamflow are shown in table 14. A constant of 100 or 200 was added to net alkalinities at sites with both positive and negative values before logarithms were taken. Net alkalinity increases (becomes less acid) with increasing streamflow at sites with normally acidic pH, and decreases (becomes less alkaline) with increasing streamflow at sites with normally alkaline pH. Standard errors of estimate are usually less than 0.10. In both situations, an increase in streamflow helps to dilute the sources of acidity or alkalinity, thus reducing the buffering capacity of the stream.

Nitrogen and Phosphorus

Samples were analyzed for ammonia nitrogen, nitrite-plus-nitrate nitrogen, organic nitrogen, total phosphorus, and orthophosphate.

Tables 15 and 16 summarize dissolved and total nutrients, respectively, at each site.

Table 15 shows that nitrite-plus-nitrate contributed 55 percent of the sum of ammonia, nitrite-plus-nitrate, and organic nitrogen. Organic nitrogen comprised 40 percent of the same sum. Ammonia nitrogen was a small contributor (5 percent of the sum). The sum of organic phosphorus plus orthophosphate was composed of about equal amounts of organic phosphorus and orthophosphate except in one sample from Crooked Creek at Middlebury Center in which the orthophosphate concentration (0.48 mg/L) was considerably higher than the organic phosphorus concentration. The median nitrogen and phosphorus concentrations were generally low, but high enough to support biological activity.

The total nitrogen and phosphorus data (table 16) show the same trends as data for dissolved nitrogen and phosphorus. Maximum concentrations of total nutrients are substantially higher than those for dissolved nutrients, whereas median concentrations are only slightly higher. This is probably due to the contribution of nitrogen and phosphorus associated with sediment during high flows, but no direct correlations between the total and dissolved nutrients can be made as the two types of samples were collected at different times. Most nutrients attached to sediment particles are not readily available for biological uptake.

Logarithmic regression analyses relating discharge to nitrogen and phosphorus show that some variability in nutrient levels is due to seasonal effects. The standard errors of estimate for discharge and dissolved nutrients are about the same as those for discharge and total nutrients. Generally, both dissolved and total nitrogen and phosphorus increase with increasing discharge at all sites, probably as a result of nonpoint sources in the basin.

Table 14. -- Regression coefficients for the logarithms of streamflow to net alkalinity

Site	log a	م	Standard error of estimate	Number of observations
Tioga River near Mansfield $(+100)^{1/2}$	0.94	0.38	0,11	13
Tioga River at Lambs Creek (+200)	1.92	.13	60°	51
Mill Creek near Tioga	2.17	34	.13	43
Tioga River at Tioga (+100)	1.73	.10	60°	43
Crooked Creek at Middlebury Center	2.12	29	.12	24
Crooked Creek at Tioga (1)	2.07	22	.12	9
Crooked Creek at Tioga (2)	2.00	20	.15	34
Tioga River at Tioga Junction (+100)	2.05	00.	*0	97
Cowanesque River at Westfield	2.51	-1.01	.17	٣
Mill Creek at Westfield	1.97	21	• 02	\$
Cowanesque River at Cowanesque	2,38	43	• 08	4
Troups Creek at Knoxville	2,00	17	• 03	4
Cowanesque River at Nelson	2.32	26	*00	18
Cowanesque River near Lawrenceville	2.37	29	60.	45
Tioga River at Lindley	2.00	20	.15	38

1/Indicates the value added to the net alkalinity to compute regression coefficients for this site.

Table 15.--Summary of dissolved nitrogen and phosphorus data, September 1977 to September 1978

	Amont	onia nitrogen	gen	Nitrite + nitrate nitrogen	nitrate	ntrogen	Organ	Organic mitrogen	u e u	Organ	Organic phosphorus	orus	Ort	Orthophosphate	
		as P (mg/L)			as N (mg/L)	ڔ	-	BS N (mg/L)			AS F THE/L/	10,000	max form	at ni mum	median
Site bane	Bex (with	minimum	median	meximum	minimum median	median	BAXIBUR BIDIBUR	WINIBUM	med1an	MAX BUIL	MEXIBUM DY HT BOTH				
Tioga River at Lambe Creek	0.17		0.08	0.54	0.34	0.45	0.25	0.0	0.15	0.04	00.00	00.00	0.02	0.0	0.0
Mill Creek near	90.	00.	8.		00.	.18	.41	8	•26	90.	.00	.01	•00	90.	8
Tioga River at	.13	.01	.03	69.	84.	.36	.42	.11	.23	ē.	8	8	90.	%	8.
Crooked Creek at	.00	8	.02	.76	10.	.31	\$5.	.23	.34	.03	00.	10.	894.	.00	.02
Crooked Creek at	.03	%	•01	.63	.16	.51	4.	8.	.33	,00	8.	.01	.03	8	10.
Tiogs River at	80.	.00	70.	.73	.23	.31	.51	00.	.22	%	8.	00.	.00	%	8.
TOTAL SOURCE TOTAL								;	i						

1/Data for this site are influenced by the diversion of Crooked Greek water to the Tioga River at Tioga.

Table 16.--Summary of total nitrogen and phosphorus data

		Verify in	Ammonia nitrogen as N (mg/L)		Nitrite + nitrate nitrogen as N (mg/L)	+ nitrate n as N (mg/L)	nitrogen)	Organic as N	anic nitrogen	e u	Organ	Organic phosphorus	TUE	Ort	Orthophosphate	
Site name	Period of record	nex1mm	minimum	median	mexieum	minimum	median	meximum	minimum	median	maximum	minimum	median	BAX I TUB	1 20	median
Tiogs River near near Mansfield	May 1975-Mar. 1976	0.0	0.01	0.04	0.72	0.20	0.37	0.43	90.0	0.10	0.21	00.00	0.02	90.0	0.00	0.01
Tioga River at Lambs Creek	Sept. 1973-June 1977	14.	00.	60.	1.60	.18	.52	.56	•00	.16	.18	00.	• 02		00.	.02
Mill Creek near Tioga	Sept. 1973-June 1977	60.	00 •	.02	1.10	%	.36	97.	.12	.20	.01	90.	10.	70.	8.	٠٥.
Tioga River at Tiogail	Sept. 1973-June 1977	.29	8.	•00	1.10	.16	87.	69.	•00	.18	114	• 00	.0	90•	00.	.01
Crooked Creek at Middlebury Center	Sept. 1973-Aug. 1974, June 1975-June 1977	.22	.01	.07	1.20	•0•	.35	.50	.12	.22	•00	00.	-02	.35	.01	•05
Crooked Creek at Tioga (1)	Sept. 1973-Mar. 1975	.12	•00	60.	61.	.02	.32	99.	.16	.24	.10	00.	.03	.11	%	.03
Crooked Creek at Tioga (2)	Apr. 1975-June 1977	.00	· •	.02	48.	.05	.29	09.	н.	.31	.17	0.	•04	.13	.01	70 .
Tioga River at Tioga Junction	Sept. 1973-June 1977	.24	.01	%	1.50	.16	07.	1.30	00.	.20	.18	00.	.02	.33	8.	.02
Cowanesque River at Westfield	Sept. 1973-Aug. 1974	.21	.03	90.	1.00	.05	77.	.36	.18	.21	.02	00.	.01	70.	00•	.01
Mill Creek at Westfield	Sept. 1973-Aug. 1974	.27	.03	.17	1.00	60.	.62	87.	.25	.38	60.	00.	.02	.18	•05	90.
Cowanesque River at at Cowanesque	Sept. 1973-Aug. 1974	.59	•05	.21	1.00	.10	87.	.81	.19	74.	.10	.01	•05	80.	00•	.03
Troups Creek at Knoxville	Sept. 1973-Aug. 1974	.14	.02	90.	1.80	.20	.78	.68	.19	•30	.00	00.	.01	.05	00.	.01
Cownnesque River at Nelson	Sept. 1973-Aug. 1974, June 1975-June 1977	.31	8.	60.	1.90	• 02	.61	.89	.20	.37	.15	00.	•05	90,	.01	.03
Cowanesque near Lawrenceville	Sept. 1973-June 1977	.27	00.	90•	1.20	.01	. 59	.78	.16	.32	.13	00.	.02	.10	90•	•05
Tioga River at Lindley Sept. 1973-June	Sept. 1973-June 1977	.21	.01	90.	1.20	80	87	19.	01.	.23	-2	00.	.02	.07	00	.02

Trace Elements

Collection of stream samples for the analysis of dissolved and total trace elements began in May 1974 (tables 17 to 19). Cobalt, copper, and lead (tables 17 and 18) were present in the highest concentrations. The maximum total concentrations of these metals may be deleterious to aquatic life, but the median values are within acceptable limits (Moran and Wentz, 1974).

Table 19 summarizes the aluminum, iron, manganese, and zinc data. These metals, commonly associated with acid-mine drainage, generally occur in high concentrations almost always in excess of that needed for the support of aquatic life. Iron and aluminum precipitates coat the Tioga River streambed from Blossburg to below Tioga Junction. The metal concentrations generally decrease downstream from the mines. Water from alkaline tributaries dilutes metal concentrations in the Tioga River and also raises the pH, which facilitates the precipitation of iron and aluminum. The data collected from Mill Creek and Crooked Creek are probably representative of background levels as these streams are not affected by acid-mine drainage or large industrial effluents.

The relations of aluminum, iron, manganese, and zinc to streamflow in the Tioga River were examined by regression analyses (eq. 1). The analyses (table 20) show that streamflow and manganese produced regression equations with the lowest standard errors. The relations of zinc and iron to streamflow have the next lowest standard errors; aluminum is not closely related to streamflow.

Because manganese and zinc precipitate at a pH much higher than normally observed at the Tioga River sites, dilution has a more significant influence on concentration than does precipitation. Thus, these metals are more closely related to streamflow than are iron and aluminum, which are significantly influenced by pH.

In the upper reaches of the Tioga River, dissolved and total aluminum, manganese, and zinc concentrations decrease as streamflow increases. Dissolved iron also decreases, but total iron increases. The metal concentrations decrease as high flows dilute the acid-mine drainage entering the Tioga River. Total iron probably increases because the iron that has precipitated and coated the stream bottom in this reach is scoured and transported downstream during periods of high flow.

Table 17. -- Summary of dissolved trace-element data, March to July 1975

	Age	Arsenic (ug/L		3	7 - 4 - 4 - 1		}											
Site name	noximus	merine sintem	median	Bax (mun	atutama.	median.		Chromium (Mg/	(T)	ဒီ	Cobalt (ug/	1	ř	Copper (ug/	12)		Lead (ue/l	
Tioga River at Lambs Creek	-	0	•	~	0			٥	٥	54	16	29	20 20	atutara 10	nedian 10	BAXI PAIR		median
Tioga River at Tioga	-	0	0	-	0	0	01	0	0	98	۰	23	91	. •	2 9	٠.	- (~ ,
Tioga River at Tioga Junction	2	0	0	~	0	0	01	0	10	81	٠	12	01	• •	. •		> c	o -
Tioga River at Lindley	~	0	0	0	0	0	01	0	0	ព	4	٠	10	•	01	. 2	· •	
į	Her	Hercury (µg/L)		Series	Selentim (us	E		İ										
Site name	新倉太久間以	meximum sinisum median	median	max four	ainima	median	meximum	Silver (ug/L	median.									
Tioga River at Lambs Creek	٠:	٠:	s.	-	0	1	0	1	0									
Tioga River at Tioga	٤.	٥.	Å.	-	0	-	0	0	0									
Tioga River at Tioga Junction	1.3	s.	s.	-	0	0	0	0	0									
Tioga River at Lindley	٠.	s.	٠:	-	0	0	0	0	0									

Table 18. --- Summary of total trace-element data, May 1974 to February 1975

			1	13	1/21/	1	1	Chromitin (ue)	1	(6)	Cobalt (ug/L	1	00	Copper (µg/L)		2	Lead (ug/L)	
200	A Y Tare	Arsenic (µg/L)	(L)	BAX I BULB	meximum minimum	median	maximum	minimum	median	maximum minimum	adulana	median.	maximum minimum	i i	median	max/ min	minimum	median
Tioga River at	3	0		1	0		10	0	0	140	01	00	20	0	93	1	2	4
Tiogs River at Tiogs	7	0	~	n	0	0	10	0	0	120	æ	28	20	0	20	^	0	7
Tioga River at Tioga Junction	ю	٥	-	-	0	٥	10	٥	0	75	∞	18	20	0	01	44	0	~
Tioga River at Lindley	2	0	-	-	0	0	01	0	0	38	'n	=	20	0	01	:	٥	-
	X 3	Mercury (ug/L	B/L)	axta	Selenium (µg/L	(/L)	S)	Silver (ug/l	()									
Tioga River at Lambs Creek	8.0	0.5	I	1	o	-		0	0									
Tings River at Tings	ž.	·,	٠,	7	0	1	0	0	0									
Tiogs River at Tiogs Junction	٠.	»;	.,	2	0	•	-	0	0									
Tiogs River at Lindley	٠٠ }	٤.	3.	7	0	٥	٥	0	0					{	{			

Table 19. -- Summary of aluminum, iron, manganese, and zinc data

						F	otal Meta	Total Metals (µg/L)					
			Aluminum			Iron			Manganese			Zinc	
Site name	Period of record	maximum	minimum	median	maximum	minimum	median	maximum	minimum	median	maximum	minimum	median
Tioga River at Lambs Creek	May 1974-Feb. 1975	12,000	20	2,900	3,400	200	1,500	8,400	610	2,900	1,300	6	780
Tioga River at Tioga	May 1974-Feb. 1975	7,400	10	2,400	2,600	150	760	5,900	450	2,000	3,100	9	200
Tioga River at Tioga Junction	May 1974-Feb. 1975	2,600	0	1,200	4,500	20	700	5,700	470	1,200	580	9	120
Tioga River at Lindley	May 1974-Dec. 1975	2,600	0	240	4,700	0	650	2,300	260	830	310	07	100
						Dis	solved Me	Dissolved Metals (µg/L)	<u> </u>				
Site name	Period of record	maximum	Aluminum minimum	median	meximum	Iron minimum	median	maximum	Manganese maximum minimum	median	maximum	21nc minimum	median
Tioga River near Mansfield	May-Dec. 1975, Feb. 1978	9,200	810	3,800	1,200	100	550	7,300	1,500	3,900	1,100	200	610
Tioga River at Lambs Creek	MarNov. 1975, Oct. 1977-Sept. 1978	8,500	07	3,300	1,700	20	360	8,100	710	3,600	1,700	9	420
Mill Creek near Tioga	Oct. 1977-Sept. 1978	220	20	07	420	0	20	40	0	20	70	0	01
Tioga River at Tiogal/	MarNov. 1975, Oct. 1977-Sept. 1978	4,000	30	09	470	10	80	5,100	810	1,600	620	70	260
Crooked Creek at (Middlebury Center	Oct. 1977-Sept. 1978 er	80	10	30	110	10	0,4	100	20	07	30	0	10
Crooked Creek at Tioga (2)	Oct. 1977-Sept. 1978	70	20	30	100	0	10	07	0	20	01	0	10
Tioga River at Tioga Junction	MarDec. 1975, Oct. 1977-Sept. 1978	170	20	09	280	0	07	3,200	360	1,400	260	20	180
Tioga River at Lindley	Mar. 1975-Dec. 1975	120	10	30	310	20	09	1,400	250	580	0.6	10	50

 $\frac{1}{2}/1978$ data were not included because of the diversion of Crooked Creek to Tioga River at Tioga.

Table 20.—Regression coefficients for the logarithms of streamflow to aluminum, iron, manganese, and zinc

S	ite name	log a	ъ	Standard error	Number of observation
Tioga River n	ear Mansfield				
<u>x</u>	¥				
streamflow	dissolved aluminum	6.09	-1.31	0.41	9
	dissolved iron	3.69	56	. 38	9
	dissolved manganese	4.79	62	.13	9
	dissolved zinc	4.11	70	,15	9
lioga River a	t Lambs Creek				
х	<u>y</u>				
streamflow	dissolved aluminum	5.47	-1.03	,53	16
	total aluminum	3.95	35	.84	10
	dissolved iron	2.64	08	. 35	16
	total iron	2.48	. 35	.16	10
	dissolved manganese	4.60	51	.15	16
	total manganese	4.67	58	.12	10
	dissolved zinc	4.19	71	. 16	16
	total zinc	3.85	57	.15	10
Tioga River a	t Tioga				
Ŧ	¥				
streamflow	dissolved aluminum	4.55	99	.71	9
	total aluminum	3.87	30	.86	10
	dissolved iron	2.26	14	.50	9
	total iron	1.55	.61	. 18	10
	dissolved manganese	4.63	58	.15	9
	total manganese	4.62	58	.16	10
	dissolved zinc	4.05	72	.18	9
	total zinc	4.11	71	. 28	10
Tioga River a	t Tioga Junction				
$\bar{\mathbf{x}}$	¥				
streamflow	dissolved aluminum	1.97	~ .10	.28	18
	total aluminum	1.24	.66	.45	8
	dissolved iron	-1.03	.98	.47	18
	total iron ,	48	1.27	. 41	9
	dissolved manganese	3.96	34	.24	18
	total manganese	4.30	48	.20	9
	dissolved zinc	3.54	57	. 29	18
	total zinc	3.39	50	.19	9
Tioga River a	t Lindley				
×	¥				
streamflow	dissolved aluminum	1.94	12	. 35	10
	total aluminum	. 37	.84	. 71	15
	dissolved iron	. 48	.48	.40	10
	total iron	32	1.17	. 70	15
	dissolved manganese	3.76	36	. 20	10
	total manganese	3. 9 8	43	. 19	15
	dissolved zinc total zinc	1.98 2.74	12 30	.32	10 15

In the lower Tioga River, at Tioga Junction and Lindley, however, concentrations of total aluminum and dissolved and total iron increase, whereas the other metals decrease with increasing streamflow. Again, total aluminum and iron increase with increasing streamflow because their precipitates are transported during high flow. There is more aluminum precipitate in this reach of the Tioga River because the median pH (6.7) at Tioga Junction is high enough to cause precipitation; upstream from Tioga Junction the pH is generally too low for precipitation to occur. The dissolved-iron concentrations in this reach are low compared to those upstream, and the reason dissolved iron increases with streamflow is not clear. Perhaps the shortened time of travel during high flow is not conducive to precipitation.

Diel Measurements

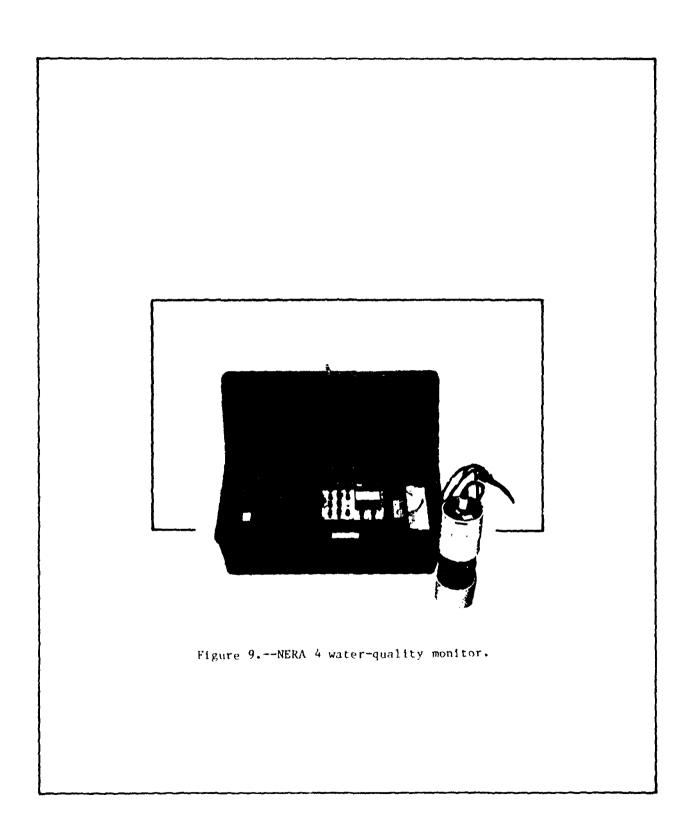
Diel water temperature, pH, specific conductance, and dissolved oxygen measurements were made at selected sites. The measurements, lasting from 1 to 5 days each, were made every 30 minutes with a NERA 4 water-quality monitor (fig. 9). Hourly data collected at each site are summarized in table 23.

Examples of observed fluctuations in water temperature, pH, specific conductance, and dissolved oxygen are shown in figures 10 and 11. The figures show the differences in diel fluctuations in two different water-temperature ranges at Tioga River at Lambs Creek and Mill Creek near Tioga.

Streamflow was constant or slowly decreasing for measurements made at both temperature ranges at Tioga River at Lambs Creek. The weather was clear and sunny as evidenced by the sharp rise in water temperature, which peaked at about 1700 each day (fig. 10). Water temperatures ranged from 7° to 14°C on April 29, 1976, and from 16° to 20°C on September 16, 1978.

The differences in water temperature for the two dates affected the concentration of dissolved oxygen in the water. In April, dissolved-oxygen levels were higher than in September, because the water was cooler and could hold more oxygen before reaching saturation. The concentrations of dissolved oxygen at 100 percent saturation are plotted in figure 10.

The fluctuations in dissolved oxygen on April 29 were caused by changes in water temperatures, as the percentage saturation was nearly constant. On September 16, however, dissolved oxygen was supersaturated from about 0900 to 1800. This supersaturation probably resulted from biological activity of algae and phytoplankton in the stream during the daylight hours.



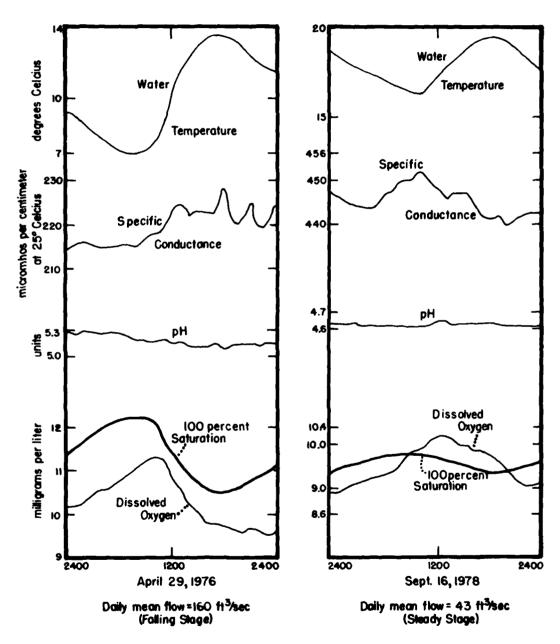


Figure 10.--Diel measurements of water temperature, specific conductance, pH, and dissolved oxygen at Tioga River at Lambs Creek.

Biological activity generally affects both the dissolved-oxygen concentration and the pH of a stream. Photosynthesis during the day shifts the carbonate equilibrium and raises the pH of a stream as well as the dissolved-oxygen concentration. In a well-buffered system, however, the effects of biological activity on the carbonate equilibrium may be masked and there will be little or no resultant pH change. Consequently, the best determinant of biological activity is an increase in dissolved-oxygen concentration. On September 16, there was more biological activity than on April 29, as reflected in the large changes in dissolved-oxygen concentrations, but little change in pH because of strong buffering.

The specific conductance changed less than 10 percent during April 29 and September 16. The changes observed were probably related to changes in streamflow, not photosynthesis and respiration. The twofold increase in conductance between the April and September measurements was caused by lower streamflow and related higher concentrations of dissolved solids in September.

Water temperature at Mill Creek near Tioga (fig. 11) changed from 8° to 13°C on April 12, 1978, and from 12° to 21°C on June 14, 1978, peaking at 1600 on both dates. Weather during both of these periods was clear and sunny, but streamflow on April 12 was high from a previous storm; streamflow June 14 was decreasing gradually. The changes in water temperature affected dissolved-oxygen levels at Mill Creek. Dissolved-oxygen levels exceeded saturation during the day on both April 12 and June 14, indicating that there was biological activity in the stream. The increased dissolved oxygen during the day is probably due to photosynthesis, and decreased dissolved oxygen during the night is probably due to respiration. The June 14 dissolved-oxygen levels increased more than those on April 12. Water temperatures were higher and the diel change was greater on June 14, indicating more sunlight than on April 12. The combination of dissolved-oxygen levels and water temperature changes is indicative of more photosynthesis activity on June 14 than on April 12.

The pH changed diurnally during both the April 12 and June 14 measurements. The peaks in pH correspond roughly to peaks in water temperature and were probably a result of carbonate equilibrium shifts due to photosynthesis and respiration; dissolved-oxygen peaks occurred about 6 hours earlier.

Specific conductance during these two dates changed less than 10 percent, and was basically influenced by streamflow. The small differences recorded seem to be inversely related to water temperatures as the minimums occur simultaneously with the water temperature maximums.

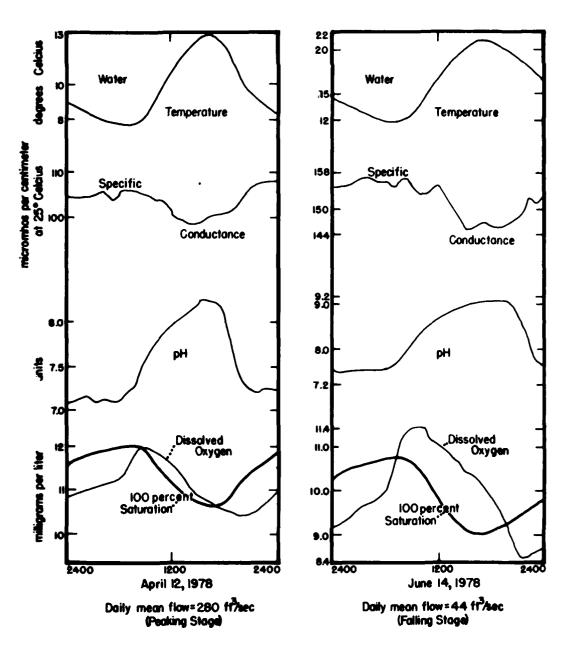


Figure 11.--Diel measurements of water temperature, specific conductance, pH, and dissolved oxygen at Mill Creek near Tioga.

Diel measurements were also made at Crooked Creek at Middlebury Center and Cowanesque River at Nelson. Observations at these two sites were similar to those observed at Mill Creek near Tioga.

Biological Data

Coliform bacteria and phytoplankton data, collected at several sites, are summarized in table 21. Acid-mine drainage probably reduces the survival of fecal coliforms, which is reflected in the low counts at the Tioga River sites. The ratios of fecal coliform bacteria to fecal streptococci are all less than one. Fecal contamination may be predominantly from animal (nonhuman) sources (Geldreich and Kenna, 1969). Care in interpreting these ratios is necessary because they can be easily altered by die-off and because the fecal coliform counts are low. The bacteria counts could increase and the ratio of fecal coliform bacteria to fecal streptococci could change if mine drainage is neutralized without additional sources of contamination.

Table 21 shows that Tioga River at Lambs Creek and Crooked Creek at Middlebury Center had the highest phytoplankton counts. The counts probably include fragments of periphyton which had broken away from natural substrates, and may be limited by the velocity of the stream rather than its nutrient content.

Table 22 summarizes the dominant (greater than 15 percent of the sample) phytoplankton and the percent composition of each sample collected in 1978. The phytoplankton found in Tioga River at Lambs Creek samples were mostly blue-green algae during summer, and pennate diatoms in May and June. The Tioga River at Tioga supported a slightly more diverse population, which included pennate diatoms present throughout the season, blue-green algae from May to August, and green algae in September. Tioga River at Tioga Junction contained pennate diatoms from May to August, blue-green algae in March, green algae in May and August, and centric diatoms in May. There were no phytoplankton in the September sample at Tioga Junction. Mill Creek contained pennate diatoms through the season and blue-green algae in June and September, green algae in July and September, and centric diatoms in July.

Crooked Creek at Tioga (2) had a mixture of pennate diatoms, green algae, and blue-green algae through the season. This site was affected by the diversion of water into the Tioga River above Tioga, which severely limited the amount and velocities of waters in the stream. The diversion of water and increased water temperatures probably affected the phytoplankton results at Crooked Creek at Tioga (2). Before water was diverted from Crooked Creek, phytoplankton at Crooked Creek at Tioga (2) was probably more closely related to that upstream at Middlebury Center. Crooked Creek at Middlebury Center contained pennate diatoms through the season, and green algae and euglenoids in July. No other site contained euglenoids that were dominant.

Table 21. -- Summary of coliform bacteria and phytoplankton data collected during 1978

	Fecal co	Fecal collform bacteria (colonies/100 mL)	acteria mL)	Fecal (colo	Fecal streptococct (colonies/100 mL)	occt mL)	Total phytoplar (cells/mL)	Total phytoplankton (cells/mL)
Site name	maximum	maximum minimum median	median	maximum	maximum minimum median	median	maximum minimum	minimum
Tioga River at Lambs Creek	$2^{\frac{1}{2}}$	21/ <11/	\u00e41	190	71>	517	10,000	011
Mill Greek near Tloga	270	774	60	840	/761	120	1,200	82
Tinga River at Tinga	170	∵	₽	200	\f\1\	117/	2,300	82
Crooked Creek at Middlebury Center	180	717	81	5,900	8.5	210	7,800	68
Crooked Creek at Tinga (2)	53	21/	/79	310	20	130	2,400	42
Tioga River at Tioga Junction	110	\frac{11\frac{1}{1}}	417	740	121/	40	4,100	0

Table 22.--Summary of dominant phytoplankton and the percent composition of each sample, in parentheses, collected in 1978

Site name	March 24	May 25	June 28	July 25	August 24	September 27
Tioga River at Lambs Creek	BG (58)	PD (100)	PD (43) BG (55)	BG (84)	BG (94)	BG (88)
Mill Creek near Tioga	PD (100)	PD (89)	PD (71) BG (20)	G (57) CD (25)	PD (94)	G (54) PD (26) BG (20)
Tioga River at Tioga	PD (100)	PD (44) BG (17)	PD (65) BG (27)	PD (31) BG (47)	BG (89)	G (20) PD (70)
Crooked Creek at Middlebury Center	PD (100)	PD (95)	PD (93)	G (59) E (27)	PD (77)	PD (100)
Crooked Creek at Tioga (2)	CD (33) PD (67)	PD (95)	G (39) BG (24)	G (32) PD (43)	GB (51)	G (53) PD (47)
Tioga River at Tioga Juntion	BG (89)	G (50) CD (20) PD (30)	PD (95)	PD (82)	G (18) PD (82)	1

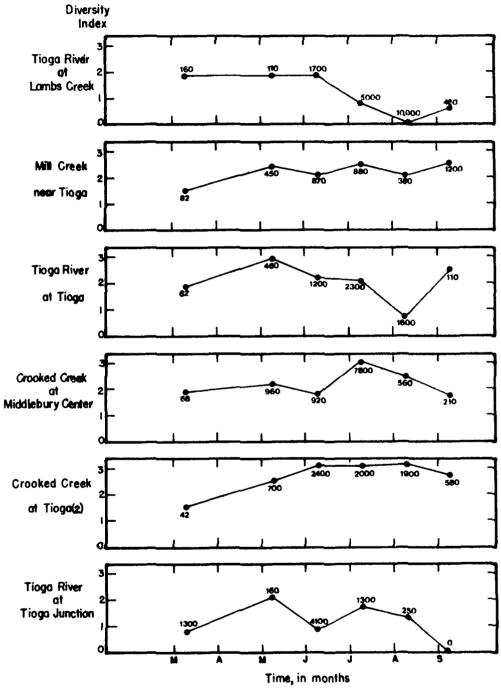
G - Green algae
BG - Blue-green algae
CD - Centric diatoms
PD - Pennate diatons
E - Euglenoids

Figure 12 shows the changes in diversity indices (by genus) through the summer. Also listed for comparison are the total counts for each sample. The highest count, at Tioga River at Lambs Creek, coincided with the lowest diversity index for that site and was dominated by bluegreen algae. Blue-green algae are commonly dominant during warm water temperatures in the fall. Generally, a high count with a decreased diversity index indicates a preferential bloom of a particular class and should not be interpreted as indicating a healthy population. Populations with a diversity index of less than three are considered to be under some type of chemical or physical stress. Only the two Crooked Creek sites had diversity indices of three or more. The diversion of water into the Tioga River at Tioga caused lower velocities and higher water temperatures in Crooked Creek at Tioga (2) than would have been expected. This may indicate that there will be some change in the diversity indices of the lakes than is now observed in the streams.

Algal growth-potential (AGP) samples were collected at Tioga River at Lambs Creek, Mill Creek near Tioga, Crooked Creek at Middlebury Center, and Cowanesque River at Nelson in April and May 1976. The AGP assay is designed to measure the maximum potential for algal growth by introducing Selenastrum capricornutum to a sample of water and measuring its growth rate under standardized laboratory conditions. The results were all extremely low, less than 1.2 mg/L, probably because S. capricornutum is very sensitive to zinc and is not native to this area. After two sets of samples were tested, the analysis was discontinued. The absence of growth of S. capricornutum, however, does not indicate that other species of algae will not grow in the Tioga River basin and the three reservoirs; nor does it mean that there will not be excessive growth of specific algal species, as evidenced by high counts of blue-green algae at Tioga River at Lambs Creek.

IMPOUNDMENTS AND THEIR EFFECTS ON EXISTING WATER QUALITY

The water quality and streamflow characteristics of the inflows to the three reservoirs under construction were measured at Tioga River at Lambs Creek and Mill Creek near Tioga for Tioga Lake; Crooked Creek at Middlebury Center for Hammond Lake; and Cowanesque River at Nelson for Cowanesque Lake. Regression coefficients given in this report may be used to compute probable chemical concentrations based on streamflow at these sites. Any changes upstream from these as changes in land use, enhanced recreational activity, or the treatment of acid-mine discharges above Mansfield would affect the quality of water entering the reservoirs and change the regression coefficients given here.



Numbers are cells per milliliters

Figure 12.--Diversity index (by genus) and total counts of phytoplankton sampled in 1978.

The rates of sediment deposition in the planned lakes can be estimated by utilizing the following assumptions: (1) the 3 years of sediment record at Tioga River at Lindley are representative of the long-term average; (2) sediment yields at Tioga River at Lindley represent sediment yields in the basin above the lakes; and (3) the trap efficiencies of the lakes, based on capacity-inflow ratios calculated by Brune (1953) are about 80 percent. Accordingly, deposition rates in Tioga, Hammond, and Cowanesque Lakes will be 120, 50, and 130 acre-feet per year, based on a specific weight of about 60 lb/ft³ of deposited sediment. Much of this deposition will probably be concentrated in the shallow inflow areas of the lakes.

A part of Mill Creek near Tioga will be impounded by Tioga Lake, and this section of the Tioga Lake will probably be more eutrophic than the rest of the lake. Tioga Lake will probably stratify chemically and thermally during the summer, allowing high concentrations of heavy metals to accumulate in the lower levels of the lake. Dissolved-oxygen levels in the hypolimnion will be significantly lower than in the epilimnion due to the oxidation of these metals. Lower-level outlets from Tioga Dam should not be used during these periods of stratification to prevent degradation of water quality in the Tioga River below Tioga Dam. The epilimnion of Tioga Lake near the weir will contain a mixture of water from Tioga and Hammond Lakes that will extend down to the outlet of Tioga Dam. This section of Tioga Lake will experience periodic changes in water quality, depending on the control of the weir discharge and its lateral and vertical mixing with Tioga Lake water.

The epilimnion of Tioga Lake will probably be saturated with oxygen and support some algal activity, but it will be limited by phosphorus availability. The lake may be somewhat acid, with more acidity near the inflow than in the main body of the lake. The Mill Creek arm of Tioga Lake and Tioga Lake near the dam will probably maintain pH levels of 6 or more. Phytoplankton will probably be mainly centric and pennate diatoms, green algae, and blue-green algae.

Hammond Lake will be essentially alkaline and have relatively uniform water quality. It will be thermally stratified and will probably support a substantial warm-water fishery. The lake may be affected periodically during high flows by inflow from Tioga Lake through the weir, but the inflow, which comes from the epilimnion of Tioga Lake, will contain significantly less acidity and lower concentrations of heavy metals than the main body of Tioga Lake.

Crooked Creek below the Hammond Dam near Tioga will have regulated flows greatly reduced from those measured previously, as the majority of Hammond Lake water will be released into Tioga Lake. Therefore, this part of Crooked Creek will be shallow, will have a higher water temperature, and will probably have increased algal growth from that measured. Nutrient levels and specific conductance may decrease in Crooked Creek below the dam if the lake acts as a sink for nutrients. Dissolved-oxygen levels may fluctuate more widely than at present because of lowered initial dissolved-oxygen levels below the dam and increased algal activity in the streams. Unregulated flows entering Crooked Creek from the emergency spillway may disturb the balance of biological activity downstream by scouring the channel. However, these emergency flows will be of short duration.

The water quality of Tioga River at Tioga, downstream from Tioga Dam, will probably improve. During 1978, while flow from Crooked Creek was diverted to the Tioga River during construction of the reservoirs, water quality at Tioga improved to a level that had been previously observed only as far upstream as Tioga Junction. The water quality of the Tioga River below Tioga Dam should have concentrations of heavy metals similar to present levels at Tioga Junction. Operation of the multilevel withdrawal system for Tioga Lake can be done in such a way as to support a warm-water fishery in the Tioga River below Tioga Lake. Releases from the lower levels of Tioga Lake during stratification would be deleterious to both the fish and benthos in the reach between Tioga and Lawrenceville because of low dissolved-oxygen, low pH, and high metal concentrations.

Cowanesque Lake will be an alkaline, thermally stratified reservoir, similar in quality to Hammond Lake. The large reserves of alkalinity in water of Cowanesque Lake can be used in emergencies to neutralize acid loads in the Tioga River and limit any degradation of water quality in the Tioga River to the reach above Lawrenceville. The flow of the Cowanesque River below the dam will be governed by releases from the lake, and the quality should be at least as good as it is presently.

Tioga River at Lindley, the downstream limit of the study, will show the effects, in both flow and quality, of the management of all three reservoirs upstream. The quality at Lindley during the study was adequate for maintenance of a warm-water fishery, and flows can be regulated so as to maintain or improve existing quality. Extended periods of low-flow during which acid-mine drainage degrades water quality in the Tioga River downstream as far as Lindley could be eliminated by controlled releases from the reservoirs.

SUMMARY

A study of the water quality in the Tioga River basin was made from September 1973 to September 1978 to provide data to the Corps of Engineers for use in planning the operation of three reservoirs under construction in 1978. The preimpoundment water quality of the Tioga River and its major tributaries was examined, and characteristics of the reservoirs and their effects on downstream water quality are postulated.

Annual suspended-sediment yields averaged 575 tons per square mile above the downstream limit of the study. Percentages of sand, silt, and clay carried during storms were 8, 49, and 42 percent, respectively. Mill Creek near Tioga and the Cowanesque River upstream from Nelson were the smallest contributors of suspended sediment. Some sites on the Tioga River and Crooked Creek were periodically affected by construction associated with the reservoirs.

Acid-mine drainage enters the Tioga River above Blossburg, degrading water quality by increasing levels of sulfate, trace elements, and specific conductance, and decreasing alkalinity and pH. Mill Creek (near Tioga) and Crooked Creek are alkaline tributaries which help to neutralize acid-mine drainage in the Tioga River. The Cowanesque River is also alkaline, but is slightly affected by industrial effluents near Westfield, and has high chloride levels. Nutrient levels in the basin are generally low, but high enough to support biological activity. Concentrations of many of the water-quality constituents were related to discharge using regression techniques.

Diel measurements of water temperature, specific conductance, pll, and dissolved oxygen made at selected sites during different seasons indicate that mine drainage has repressed biological activity in the Tioga River. Low pll has also greatly reduced the survival of coliform bacteria. The ratio of fecal coliform bacteria to fecal streptococci indicates that fecal contamination is predominantly from animal sources. The dominant types of phytoplankton were blue-green algae, pennate diatoms, and green algae. Most of the phytoplankton samples have low diversity indices. Algal growth-potential analyses using <u>Selanastrum</u> capricornutum produced low counts.

Tioga Lake will be acidic and probably stratify chemically and thermally during the summer, allowing high concentrations of heavy metals to accumulate in the lower levels of the lake. Dissolved-oxygen concentrations near the bottom will be significantly lower than in the upper levels due to oxidation of the metals. Tioga Lake will probably experience periodic changes in water quality near the weir which joins it to Hammond Lake, depending on the control of the weir discharge and the lateral and vertical mixing of the weir discharge with Tioga Lake water.

Hammond and Cowanesque Lakes will be alkaline and thermally stratified. They will probably support a warm-water fishery.

The water quality of the Tioga River below the Tioga Dam will probably improve due to the addition of Hammond Lake water to the outflow from Tioga Lake. Releases from the multilevel withdrawal system will allow the water quality of the river to stabilize, and the Tioga River will not be subject to the extreme low-flow conditions that have historically damaged aquatic life.

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Table 23.—Diel measurements of water temperature, specific conductance, pl, and dissolved oxygen at selected sites

TIOCA RIVER AT LAMBS CREEK

TEMPERATURE, IN DEGREES CELSIUS, AT INDICATED HOURS

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3/10/76	PM 1.0	1.1	1.3 0.6	1.4 0.6	1.4	1.3	1.2	1.2	1.1	0.9 1.2	0.8 1.6	0. r 3. 1
4/09/76	AM.											16.7
4/10/76	PM 17.6 AM 15.4 PM 16.8	18.7 14.8 19.0	19.8 14.3 20.6	20.3 13.8 21.3	20.4 13.5 21.5	20.0 13.1 21.2	19.2 12.7 20.6	18.4 12.3 19.8	17.5 12.3 19.1	16.8 12.8 18.1	16.3 13.7 17.4	15,9 14,9 16,9
4/11/76	AM 16.3 PM 20.1	15.8 21.6	15.4 22.8	14.9	14.5 22.1	14.1 22.0	13.9 21.4	13.7 21.1	14.0	14.8	10.5	18.1
4/27/7 6 4/28/76	PM AM 5.9	5.7	5.5	6.5 5.3	6.7 5.2	6.6 4.9	6.4 4.9	6.3 4.9	6 4.9	6.2 5.6	6.1 6.7	6,0 7.0
4/29/76	PM 8.8	9.5 8.8	9.8 8.4	10.3 8.0	10.3 7.7	10.0 7.3	9.8 7.0	9.9 6.8	9.7 6. 8	9.5 7.3	9.4 8.4	9.4
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5/01/76	PM 11.2 AM 13.0	12.9 12.4	14.5 11.8	15.3 11.3	16.2 10.7	16.5 10.2	16.4 9.8	15.9 9.6	15.4 9.5	9.7	14.2	13.6 10-6
5/02/76	PM 10.9 AM 10.9 PM 12.1	11.0 10.7 12.8	11.0 10.5 13.9	10.9 10.2 14.9	11.0 9.8 15.4	11.2 9.6 15.6	11.4 9.3 15.0	11.5 9.2 14.3	11.4 9.1 13.8	11.3 9 13.7	11.7 9.7 13.5	11.0 19.7 13.1
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9/14/78	AM PM 17.0	17.5	18.2	18.4	18.7	18.6	18.3	17.8	15.2 17.3	15. 5 17.1	15.9 16.7	16.6
9/15/78	AM 16.2 PM 17.6	16.1 18.8	16.0 20.1	15.8 20.6	15.7 20.8	15.5 20.7	15.4 20.3	15.3 20.1	15.2 19.9	15.3 19.4	15.7 19.0	16 3
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9/17/78	AM 17.2 PM 16.8	16.7 17.2	16.5 17.6	16.2 17.7	16.0 17.8	15.8 17.8	15.6 17.7	15.4 17.7	15.6 17.7	15.7 17.7	16.1 17.7	16.4
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3/08/76 3/09/76 3/10/76 4/09/76 4/10/76 4/11/76 4/27/76 4/28/76 4/29/76 4/30/76 5/01/76 5/03/76 5/03/76 5/04/76 9/14/78 9/15/78	AM PH 172 AM 179 PM 183 AM 182 AM 182 AM 312 PM 320 AM 312 PM 305 AM 365 PM 205 PM 216 AM 226 AM 226 AM 226 AM 226 AM 224 PM 123 AM 176 PM 193 AM 176 PM 194 AM 203 AM PM 392 AM 412 PM 392 AM 412 PM 436 AM 446 AM 446	175 179 181 182 304 312 309 342 373 204 212 220 222 223 231 229 239 225 188 178 198 201	175 180 178 182 299 106 109 137 167 203 217 219 222 226 234 213 212 228 180 178 201 201	177 181 182 181 278 300 310 350 366 193 203 217 224 222 236 232 235 226 183 184 203 206	179 182 182 182 182 280 299 312 141 178 195 206 212 219 221 225 230 232 429 423 176 488 198 200	179 184 186 183 277 298 112 345 175 196 203 211 229 220 230 236 218 177 202 439 447 441	178 186 185 183 277 298 319 346 383 201 208 217 218 219 225 228 235 211 176 183 199 199 406 430 441 447 447	177 190 185 180 288 305 324 350 380 203 207 214 218 225 227 229 230 207 171 184 200 205	180 189 185 18.: 288 306 334 360 203 210 217 225 221 229 233 205 171 188 200 201 180 408 449 449 440 441	178 188 197 181 298 306 325 360 207 216 227 227 227 227 227 234 205 177 192 206 207 400 400 400 400 400 400 400 400 400 4	179 188 189 189 189 180 180 180 180 180 180 180 180 180 180	474 179 186 186 187 410 602 309 43 203 203 203 203 203 203 203 203 203 20
3/08/76 3/09/76 3/10/76 4/09/76 4/10/76 4/11/76 4/27/76 4/28/76 4/29/76 4/30/76 5/01/76 5/03/76 5/03/76 5/04/76 9/14/78	AM PM 172 AM 187 183 AM 182 AM 182 AM 312 PM 305 AM 365 PM 216 AM 214 PM 226 PM 226 AM 234 AM 224 PM 193 AM 176 PM 194 AM 203 AM 199 2 AM 405 AM 203 AM 199 2 AM 416 AM 203 AM 203 AM 466 AM 466 AM 466 AM 466 AM 466 AM 466	175 179 181 182 304 312 309 342 373 204 212 220 222 231 229 229 239 225 188 178 198 201	175 180 178 182 299 306 309 137 367 203 217 219 222 226 234 232 228 180 178 201 201	278 300 310 350 360 193 203 217 217 224 236 232 235 226 183 184 703 206	179 182 182 182 182 280 299 312 341 178 195 206 212 219 221 176 183 198 206 399 479 478 444	179 184 186 103 277 298 312 345 175 196 203 211 214 229 236 218 177 182 197 202 402 439 447	178 186 185 183 277 298 319 346 383 201 208 217 218 225 228 235 211 176 189 199 199	177 190 185 180 288 305 324 350 380 203 207 219 214 218 225 227 229 230 207 171 184 205 405 430 445 450	180 189 185 18: 288 306 334 360 203 210 217 217 225 221 229 235 205 17) 188 200 201 180 408 442 449 450	178 188 197 184 298 360 325 360 207 216 219 227 227 227 227 227 234 205 205 207 216 219 227 227 247 247 247 247 247 247 247 247	179 188 195 195 195 195 195 197 197 197 197 197 197 198 198 199 199 199 199 199 199 199 199	200 (200 (200 (200 (200 (200 (200 (200

Table 23.--Diel measurements of water temperature, specific conductance, pH, and dissolved oxygen at selected sites--Continued

TIOGA RIVER AT LAMBS CREEK

pH, IN UNITS, AT INDICATED HOURS DATE 2 3 5 6 8 9 10 11 12 1 4.39 3/08/76 AM 4.69 4.68 4.60 4.72 4.68 4.73 4.68 4.60 4.60 PM 4.69 4.61 3/09/76 4.40 4.26 4.26 4.16 4.13 4.10 4.60 4.06 4.01 4.05 4.14 4.34 PM 4.52 4.45 4.50 3/10/76 4.41 4.51 4.47 4.51 4.60 4/09/76 AM 5.41 PM 5.24 5.33 5.53 5.37 5.10 5.05 5.01 5.04 5.05 5.08 5.11 5.1¢ 4.75 5.03 4.73 5.07 4.71 4/10/76 AM PM 5.04 5.05 5.01 5.01 4.93 4.91 4/11/76 ΑM 4.85 4.87 4.82 4.88 4.83 4.82 4.87 4.83 4.86 4.83 4.84 4.75 4.59 PM AM 5.60 5.40 5.62 5.31 5.58 5.58 5.30 5.57 5.35 5.57 5.30 4/27/76 5.61 5.56 5.54 5.51 5.41 5.34 4/28/76 5.45 5.41 5.20 5.27 5.27 5.23 5.22 5.21 5.29 5.22 5.23 5.29 PM 5.21 5,29 4/29/76 AM 5.28 5.23 5.14 5.13 5.12 5.15 5.17 5.09 5.11 5.09 5.06 5.14 5.10 5.17 5.00 4/30/76 5.10 5.19 5.13 AM 5.17 5.18 5.08 5.18 5.18 5,12 5.08 4.97 5.04 PM 5.05 5.05 5.03 5.01 4.94 5.00 5.01 4.95 5.03 4.97 5.02 5.11 5/01/76 5.06 5.03 5.14 5.03 5.07 5.10 5.10 AM 5.00 5.01 5.08 5.10 5.05 5.25 PM 5.04 5.05 5.12 5.05 5.16 5.10 5.16 5.17 5.18 5.19 5/02/76 AM 5.28 5.23 5.35 5.46 5,45 5.40 5.22 5.46 5.44 5.47 5.23 5.27 5.59 5.24 PM 5.46 5.47 5.53 5.56 5.57 5.51 5.50 5.55 5.25 5.52 5.49 5/03/76 AM 5.44 5.33 5.38 5.28 5.34 5.26 5.24 5.33 5.30 5.23 5.22 5.26 5.17 5.28 PM 5.17 5.23 5.15 5.24 5.20 5.20 5.19 5/04/76 5.19 5.25 5.25 AM 4.85 9/14/78 AM PM 4.85 4.78 4.75 4.63 4.76 4.77 4.78 4.83 4.80 4.78 4.77 4.76 4.75 4.76 4.77 4.75 4.62 4.62 4.62 4.76 4.75 9/15/78 AM PM 4.77 4.76 4.77 4.77 4.75 4.72 4.68 4.66 4.64 4.61 4.62 4.63 4.63 AM PM 4.62 4.62 4.62 4.62 9/16/78 4.63 4.62 4.62 4.63 4.64 4.65 4.64 4.63 4.63 4.64 4.64 4.62 4.64 9/17/78 4.63 4.63 4.62 4.61 4.59 4.59 4.59 4.58 4.59 4.59 4.54 4.69 PM 4.67 4.68 4.69 4.68 4.69 4.69 4.68 4.68 4.68 9/18/78 4.66 DISSOLVED OXYGEN, IN MILLIGRAMS PER LITER, AT INDICATED HOURS 4 5 6 7 8 11 12 DATE 1 2 3 9 10 ΑM 13.16 3/08/76 PM 12.94 AM 13.35 12.07 12.95 12.50 12.52 12.31 12.28 12.22 12.36 12.56 12,65 13.09 3/09/76 13.51 13.72 13.70 13.73 13.41 13.59 13.48 13.43 13.08 PM 13.33 13.38 13.28 13.38 13.21 13.17 13.26 13,39 13.36 13.32 15,40 3/10/76 4/09/76 AM PM 10.26 10.45 9.26 9.03 8.86 8.74 9.90 9.84 9.66 9.47 8.77 8.68 8.81 4/10/76 AM 8.90 PM 10.18 9.16 9.20 9.31 9.42 9.70 9.86 8.71 9.96 10.20 10.44 10.52 10.56 9.94 9.02 8.26 8.23 8.32 9.75 8.46 4/11/76 8.56 8.70 8.85 9.00 9.08 9.19 9.38 7.90 PM 9.20 8.26 8.06 8.98 8.62 8.48 8.30 11.70 11.47 11.22 4/27/76 PM 11.45 11.36 11.26 11.16 11.16 AM 11.20 PM 11.20 11.45 11.56 11.67 11.45 10.25 4/28/76 11.20 11.47 11.60 11.50 11.66 11.76 11.84 10.40 10.37 11.11 10.77 10.34 10.20 10.15 11.06 9.60 11.10 4/29/76 AM 10.15 10.22 10.47 10.58 10.54 10.80 10.94 9.67 11.35 11.34 10.95 9.78 9.65 PM 10.70 10.17 4/30/76 AM 9.57 PM 10.83 11.26 11.24 10,46 9.77 10.04 10.13 10.46 11.24 9.33 9.14 н,ч3 10.33 5/01/76 AM 9.22 9.40 9.55 9.62 9.76 10.20 10.35 10.47 9.74 10.56 10.63 10.50 10.30 10.16 10.32 10.32 10.13 10.04 9.96 9.74 5/02/76 10.67 ΑM 9.56 10.4. PM 10.20 10.22 10.02 9.75 9.58 9.30 9.53 9.78 9.40 9.26 9.05 9,04 5/03/76 10.25 10. G 10.43 AM 9.30 9.43 9.52 9.70 9.61 10.15 9.86 9.86 11.24 PM 10.16 10.20 10.10 9.75 9.86 9.80 9.73 5/04/76 10.55 10.84 10.90 10.53 10.43 AM 10.07 10.16 10.24 9/14/78 10.00 10.60 10,20 10.60 AM 9.52 10.25 8.83 9.87 PM 10.58 9.95 9.75 9.60 9.52 (0.45 10.50 10.35 10.20 10.07 9.85 9.70 9.5. 9.92 9/15/78 9.65 9.75 9.70 9.60 9.30 9.85 9.66 10.55 9.62 PM 10.50 AM 8.95 10.30 9.50 9.35 9.45 9.55 9.70 9.10 8.47 9.80 8.87 A. 46.

9.70

10.10

9.90

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10,20

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4.7

9.10

10.55

9/16/78

9/17/78

9/18/78

9.05

10.00

10.40

PM 10.15

PM 10.50 AM 9.20

AM

9.20

9.15

9.97

10.40

9.20

9.90

10.30

Table 23.—Diel measurements of water temperature, specific conductance, pH, and dissolved oxygen at selected sites—Continued

			TEN	PERATURE,	IN DECREES	CELSIUS,	AT INDICAT	TED HOURS				
DATE	1	2	3	4	5	6	7	8	9	10	11	12
DATE 10/06/76	AH									13.5	13.9	14.5
	PM 15.6	16.3	16.6	16.5	16.2	15.8	15.4	15.1	14.8	14.7	14.7	14.5
10/07/76	AM 14.4	14.3	14.2	14.1	13.9	13.7	13.6	13.6	13.9	14.5	15.0	15.1
10/00/74	PM 15.2	15.3	15.4	15.3	15.0	14.6	14.3	14.1	13.9	13.7	13.4	13.3
10/08/76	AM 13.1	12.9	12.8	12.8	12.6	12.5	12.4	12.3	12.2	12.1	12.2	12.4
10/09/76	PM 12.7 AM 12.1	12.7 11.9	12.7 11.8	12.7 11.7	12.7 11.5	12.7 11.3	12.6	12.5 11.1	12.4 10.9	12.3 10.6	12.2 10.5	12.2 10.3
10/03/10	PM 10.2	10.1	10.0	9.8	9.7	9.7	11.2 9.6	9.5	9.3	9.2	9.1	9.0
10/10/76	AM 8.9	8.7	8.6	8+4	8.2	8.1	8.0	7.9	3.0	8.3	8.5	8.7
10/10/10	PH 9.1	9.4	9.6	9.8	9.6	9.5	9.5	9.3	9.3	9.1	8.9	8.7
10/11/76	AM 8.4	8.3	8.2	7.9	7.8	7.6	7.4	7.3	7.4	7.7	8.2	8.9
	PM 9.5	10.0	10.2	10.3	10.2	9.9	9.7	9.5	9.2	8.9	8.6	8.3
10/12/76	0.8 MA	7.7	7.5	7.2	7.0	6.9	6.7	6.5	6.7	7.2	7.9	
4/12/78	PM			12.1	12.3	11.7	11.2	10.7	10.2	9.7	9.3	9.0
4/13/78	AM 8.8	8.5	8.3	8.0	7.8	7.7	7.6	7.7	8.2	9.0	9.8	10.6
	PM 11.6	12.0	12.7	12.9	12.5	11.9	10.9	10.0	9.3	9.0	8.5	8.0
4/14/78	AM 7.8 PM 7.2	7.4 7.7	7.2	6.8 7.8	6.6	6.2 7.7	6.0	6.1	6.1	6.2	6.6	7.0
4/15/78	PM 7.2 AM 5.9	5.8	8.0 5.5	7.8 5.3	7.8 5.1	5.0	7.2 4.8	6.9 4.9	6.5 5.1	6.1 5.2	6.0 5.6	6.0 5.8
4/13/76	PM 6.2	6.3	6.5	6.6	6.5	6.3	6.0	5.6	5.2	5.1	4.7	4.5
4/16/78	AM 4.3	4.1	4.0	3.8	3.5	3.3	3.4	4.0	4.5	4.9	5.0	5.2
4, 10, 10	PM 5.4	5.8	6.3	7.0	6.7	6.4	6.1	5.8	5.3	5.0	4.7	4.1
4/17/78	AM 3.8	3.6	3.4	3.3	3.3	3.2	3.2	3.3	4.1	5.2	6.6	7.3
	PM 7.7	8.3	9.1	9.6	10.1	10.6	8.7	8.0	7.5	7.0	6.5	6.0
4/18/78	AM 5.7	5.1	4.7	4.3	4.0	3.8	3.5	4.0	5.0	6.3	7.1	9.2
	PM 10.4	11.2	11.4	11.3	11.2	10.8	10.2	9.6	9.0	8.7	8.4	8.1
4/19/78	AM 7.8	7.5	7.3	7.1	6.8	6.7	6.5	6.5	6.4	6.5	6.5	6.7
4 400 400	PM 6.8	7.0	7.2	7.2	7.1	7.0	7.0	7.0	6.9	6.8	6.8	6.7
4/20/78	AM 6.7	6.6	6.5	6.5	6.5	6.5	6.5	6.5	6.6	6.8	7.2	7.3
	PM 7.6	7.7	7.7									
6/14/78	PM 16.6	18.5	18.4	18.7	19.1	18.7	18.1	17.3	16.2	15.6	15.1	14.6
6/15/78	AM 14.2	13.6	13.2	12.8	12.3	11.9	12.0	12.1	13.1	14.3	15.9	17.1
	PM 18.5	19.6	20.6	21.1	21.2	21.1	20.6	19.8	18.8	17.8	16.8	16.2
6/16/78	AM 15.4	14.8	14.4	14.0	13.6	13.2	12.8	13.1	14.1	15.1	16.5	17.3
	PM 17.9	18.9	19.3	20.6	20.9	20.6	20.2	19.6	18.8	18.3	17.8	17.3
6/17/78	AM 17.1	16.7	16.6	16.4	16.3	15.9	15.8	15.9	16.0	16.2	16.6	17.2
	PM 18.1	18.2	18.2	18.3	18.3	18.2	18.0	17.6	17.4	17.3	17.1	17.0
6/18/78	AM 16.9 PM 22.0	16.8 23.4	16.6 24.4	16.5 24.7	16.5 24.4	16.5 24.1	16.6 23.7	16.6 22.9	17.1 22.3	17.4 21.6	18.2 21.1	19.8 20.6
6/19/78	AM 20.3	19.9	20.1	19.8	19.5	19.4	19.2	19.1	19.3	19.5	19.3	19.2
0/15//0	PM 19.3	19.6	19.4	19.8	20.2	20.7	20.7	20.3	19.5	19.0	18.5	18.1
6/20/78	AM 17.7	17.3	16.9	16.7	16.5	16.4	16.3	16.3	16.7	18.0	19.7	21.1
0,20,70	PM 22.8	24.1	25.0	25.5	25.6	25.6	25.0	24.3	23.3	22.0	20.6	20.3
6/21/78	AM 20.1	19.5	18.9	18.6	18.4	17.9	17.7	18.1	18.3	19.2	19.7	20.2
	PM 21.2	22.3	23.2	22.7	21.7	21.4	21.3	20.7	20.5	19.7	19.6	19.6
6/22/78	AM 19.5	19.1	18.8	18.5	18.2	17.9	17.6	17.8	18.1	18.6	19.2	20.0
	PM 20.6	21.3	22.0	22.3	22.6	22.3	21.7	21.1	20.6	20.0	19.3	18.6
6/23/78	AM 17.9	17.4	17.0	16.6	15.8	15.6	15.5	15.6	16.3			
9/07/78	AM										20.7	21.0
9/0///8	PM 21.0	20.8	21.4	21.8	22.0	21.9	21.6	20.9	20.3	19.8	19.3	18.6
9/08//8	AM 18.6	18.4	18.2	18.0	17.9	17.7	17.4	17.3	17.3	17.3	17.4	17.6
7,00,70	PM 17.7	17.9	18.1	18.0	18.0	18.0	18.1	18.1	17.9	17.9	17.8	17.8
9/09/78	AM 17.8	17.7	17.6	17.3	17.0	16.9	16.7	16.6	16.7	17.1	18.3	19.9
•	PM 21.5	22.5	23.0	23.6	21.9	20.7	19.9	18.9	18.0	17.5	17.0	16.5
9/10/78	AM 16.0	15.4	15.0	14.7	14.3	13.9	13.6	13.6	14.1	15.1	16.6	18.2
	PM 18.8	19.1	18.2	17.5	17.1	17.2	17.0	16.6	16.3	16.0	15.7	14.5
9/11/78	AM 14.3	14.1	14.0	14.2	14.3	14.4	14.5	14.7	14.9	15.4	16.2	18.2
040470	PM 19.4	19.7	20.3	20.7	20.9	20.8	20.3	19.8	19.3	18.8	18.4	18.2
9/12/78	AM 18.1 PM 18.5	17.8 18.2	17.7 18.0	17.6 17.8	17.5 17.7	17.3 17.4	17.2 17.0	17.3 16.6	17.7 16.3	17.8 15.8	18.3 15.4	18.8 15.2
9/13/78	AM 15.0	14.8	14.7	14.6	14.5	14.3	14.1	13.8	14.2	15.3	16.6	18.2
7/13/10	PH 19.6	20.7	21.3	21.4	20.8	19.6	18.4	17.7	17.1	16.7	16.3	16.1
9/14/78	AM 15.9	15.7	15.4	15.2	14.9	14.7		••••			••••	
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Table 23.--Diel measurements of water temperature, specific conductance, pH, and dissolved oxygen at selected sites--Continued

		;	SPECIFIC COND	UCTANCE,	IN MICROMHOS	PER CENT	IMETER AT 2	5 DEGREES	CELSIUS, A	T INDICAT	ED HOURS		
DATE		1	2	3	4	5	6	7	8	9	10	11	12
10/06/76	AM	•	•	•	•	•	•	,	·	•	208	206	208
20,00,70	PM	204	196	198	198	197	197	203	204	201	206	202	207
10/07/76	AM	206	209	208	207	211	215	215	208	208	214	206	210
	PM	207	205	204	206	200	203	204	201	205	199	196	194
10/08/76	AH	190	188	193	196	193	189	198	194	188	185	190	187
	PM	193	194	201	196	193	191	195	194	193	191	195	191
10/09/76	AM	194	193	192	194	189	188	200	185	174	159	154	134
	PM	116	99	88	84	80	.77	77	77	81	85	89	91
10/10/76	AM	95	94	99	100	100	103	104	104	106	105	107	105
10/10/76	PM	106	107	111	114	109	112	113	115	113	116	115	115
10/11/16	AM	119	117	118	120	119	119	122	124	121	125	124	120
10/12/76	PM	123 130	119	121	121	124	121	122	124	128	129	127	1 30
10/12//6	AM	130	127	131	131	128	131	128	131	132	131	130	
4/12/78	PM				95	95	96	98	99	101	102	104	105
4/13/78	AM	104	105	105	106	104	106	107	106	106	104	104	100
1,23,.0	PM	100	99	99	100	101	101	101	105	107	108	108	108
4/14/78	AM	108	108	109	110	108	108	109	109	108	108	109	107
	PM	107	107	110	108	109	110	109	110	111	111	112	112
4/15/78	MA	110	112	112	113	112	112	113	112	112	113	113	112
	PM	111	111	112	111	111	111	112	113	115	114	115	115
4/16/78	AM	115	116	115	117	116	117	116	117	116	113	115	114
	PM	114	113	112	112	111	113	113	114	116	116	119	119
4/17/78	AM	119	120	120	121	119	118	119	118	117	116	114	113
	PM	112	113	112	111	112	112	112	113	115	118	121	119
4/18/78	MA	122	121	121	123	127	122	122	120	120	118	116	117
4 /10 /70	PM	114 120	113 121	113	112	112	112 121	112 121	114	118	115	117	117
4/19/78	AM Ph	120	119	12 1 118	120 118	121 118	119	119	121 119	121 120	121 119	119 119	119 121
4/20/78	AM	121	120	120	121	121	121	121	120	120	118	118	116
4/20//0	PM	116	115	114	121	141	141	121	120	120	110	110	110
	• • • •	***	-117	-1-4									
6/14/78	PM	140	143	142	142	142	144	147	147	148	151	154	155
6/15/78	MA	155	155	157	157	156	156	155	157	155	153	153	155
	PM	152	148	145	146	146	146	146	147	148	152	152	153
6/1 6/78	AM	156	158	158	158	159	159	159	158	159	157	156	155
	PM	149	153	153	149	148	146	145	147	151	154	156	157
6/17/78	XX	158	158	158	159	161	161	162	161	160	160	158	159
4/10/10	PM	156	155	155	154	154	152 160	153 158	153	153	153	154	155
6/18/78	AM PM	156 154	156 154	158 151	162 155	163 154	153	153	159 153	157 153	157 156	156 156	156
6/19/78	AM.	162	169	169	163	159	155	150	144	143	143	143	157 147
0/25//0	PM	147	149	149	148	146	147	149	150	150	151	152	152
6/20/78	MA	154	155	155	156	156	156	156	155	154	155	156	156
	PM	153	150	149	142	141	143	144	146	146	147	149	149
6/21/78	AH	150	150	152	154	153	153	154	154	153	153	151	151
	PM	151	153	149	147	147	147	147	145	144	143	145	145
6/22/78	AM	132	130	131	133	134	136	137	138	138	138	139	140
	PM	137	138	138	138	140	138	140	141	143	146	148	150
6/23/78	AH	150	147	148	149	151	151	152	152	151			
9/07/78												208	
7101178	AM PM	210	211	210	210	208	206	208	211	213	215		209 214
9/08/78	AK.	214	214	215	216	218	216	215	212	213	213	216 215	214
7,00,70	PM	213	213	212	214	214	215	216	217	217	218	219	218
9/09/78	MA	218	220	220	220	221	222	222	222	223	220	216	213
	PM	220	218	216	216	216	217	219	221	223	223	225	224
9/10/78	AH	225	226	228	229	231	231	232	230	229	227	224	220
	PM	208	206	206	205	203	201	203	206	207	208	210	211
9/11/78	AM	210	211	211	213	213	213	213	215	215	214	213	211
	PM	209	206	203	201	198	198	200	202	206	207	207	208
9/12/78	AM	208	210	213	213	213	213	214	213	209	204	202	202
0/12/22	PH	205	204	204	205	205	207	207	210	211	211	212	214
9/13/78	AH PH	213 205	213	215	216	216	217	216 201	216 203	216	215	212	207
9/14/78	PH.	205	203 208	200 210	198 213	197 213	198 213	201	203	206	206	207	207
// =4/10	A.T	-00	200	210	-13	-+3	-4-5						

Table 23.—Diel measurements of water temperature, specific conductance, pH, and dissolved oxygen at selected sites--Continued

PH, IN UNITS, AT INDICATED HOU	JRS
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DATE 10/06/76	MA	1	2	3	4	5	6	7	8	9	10 8.04	11 8.25	12 8.36
	PM	8.56	8.65	8.78	8.79	8.69	8.63	8.27	7.96	7.69	7.56	7.59	7.47
10/07/76	AM	7.46	7.43	7.53	7.43	7.53	7.53	7.46	7,60	7.87	8.11	8.36	8.40
	PH	8.40	8.50	8.57	8.47	8.28	7.96	7.82	7.66	7.51	7.54	7.55	7.53
10/08/76	AM	7.41	7.43	7.55	7.56	7.57	7.53	7.57	7.57	7.57	7.73	7.79	7.93
20/00//0	PH	7.97	8.00	7.97	7.91	7.85	7.74	7.71	7.58	7.65	7.63	7.63	7.62
10/00/76	AM	7.62			7.54	7.63	7.64						7.38
10/09/76			7.63	7.61				7.67	7.55	7.59	7.50	7.35	
	PM	7.13	7.06	6.95	6.86	6.77	6.89	6.77	7.06	7.11	6.99	6.93	7.06
10/10/76	AM	7.04	7.02	7.16	7.07	7.06	7.21	7.19	7.11	7.23	7.16	7.26	7.27
	PM	7.18	7.31	7.32	7.33	7.23	7.34	7.33	7.23	7.34	7.32	7.34	7.24
10/11/76	AM	7.22	7.25	7.35	7.25	7.33	7.25	7.33	7.26	7.26	7.34	7.33	7.33
	PM	7.35	7.45	7.45	7.36	7.46	7.45	7.42	7.41	7.31	7.39	7.31	7.41
10/12/76	AM	7.40	7.40	7.32	7.32	7.40	7.40	7.39	7.34	7.42	7.44	7.46	
4/12/78	PM				7.96	7.77	7.66	7.41	7.24	7.16	7.16	7.14	7.13
4/13/78	AM	7.15	7.14	7.10	7.13	7.11	7.15	7.23	7.33	7.46	7.72	7.86	7.95
	PM	8.07	8.12	8.25	8.27	8.23	8.02	7.59	7.35	7.26	7.24	7.23	7.22
4/14/78	AM	7.22	7.20	7.22	7.20	7.18	7.26	7.40	7.58	7.78	7.90	7.92	7.98
4124110	PM	8.08	8.13	8.23	8.20	8.11	7.97	7.59	7.35	7.30	7.25	7.25	7.25
4/15/78	AM	7.23	7.23	7.23	7.25	7.22	7.27	7.36	7.57	7.79	7.96	8.06	8.18
41 121 10													
	PM	8.28	8.33	8.36	8.43	8.43	8.26	7.76	7.43	7.34	7.31	7.28	7.27
4/16/78	AM	7.26	7.27	7.27	7.27	7.27	7.31	7.51	7.77	7.96	8.03	8.17	8.25
	PM	8.34	8.40	8.48	8.52	8.44	8.29	7.96	7.54	7.39	7.33	7.31	7.26
4/17/78	AM	7.18	7.17	7.18	7.18	7.17	7.20	7.43	7.66	7.93	8.12	8.26	8.37
	PM	8.50	8.63	8.73	8.81	8.87	8.82	8.59	8.02	7.58	8.41	8.36	7.35
4/18/78	AH	7.35	7.34	7.34	7.34	7.35	7.36	7.65	7.90	8.07	8.31	8.44	8.54
	PH	8.70	8.78	8.97	9.04	9.04	9.03	8.90	8.35	7.74	7.53	7.43	7.37
4/19/78	KA	7.36	7.36	7.36	7.36	7.36	7.36	7.39	7.51	7.65	7.90	8.20	8.37
41.237.70	PM	8.41	8.63	8.69	8.68	8.58	8.26	7.82	7.52	7.44	7.41	7.38	7.40
4/20/78	AM	7.37	7.36	7.36	7.36	7.36	7.35	7.42		7.86	8.25	8.47	8.53
4/20//0					7.30	7.30	7.33	1.42	7.58	7.00	8.23	5.47	0.53
	PH	8.63	8.66	8.65								•	
6/14/78	PM	8.60	8.67	8.75	8.86	8.97	9.01	8.99	8.76	8.32	7.77	7.61	7.50
6/15/78	AH	7.47	7.47	7.50	7.51	7.51	7.51	7.63	7.90	8.15	8.42	8.58	8.66
	PM	8.77	8.89	9.00	9.08	9.10	9.10	9.10	8.99	8.70	8,17	7.65	7.65
6/16/78	MA	7.55	7.48	7.48	7.50	7.50	7.54	7.70	7.92	8.21	8,45	8.62	8.77
	PM	8.92	9.03	9.10	9.31	9.47	9.50	9.41	9.16	8.80	8.37	7.92	7.67
6/17/78	MA	7.65	7.62	7.57	7.53	1.52	7.52	7.63	7.73	7.86	8.11	8.30	8.47
-, -, ,	PM	8.63	8.72	8.73	8.85	8.87	8.85	8.72	8.41	8.08	7.74	7.70	7.60
6/18/78	AM	7.51	7.50	7.51	7.50	7.41	7.53	7.68	7.83	8.02	8,26	8.43	8.50
0,20,70	PK	8.67	8.70	8.80	8.83	8.83	8.81	8.70	8.40	8.02	7.74	7.65	7.52
6/19/78	AM	7.48	7.62	7.59	7.55	7.50	7.45	7.41		7.47	7.50		7.52
0172110									7.43			7.50	
4 100 170	PM	7.61	7.68	7.70	7.74	7.85	7.88	7.78	7.73	7.55	7,50	7.50	7.50
6/20/78	AM	7.48	7.47	7.46	7.45	7.47	7.47	7.48	7.60	7.80	7.92	8.02	8.07
	PM	8.20	8.55	8.38	8.30	8.33	8.28	8.29	8.00	7.78	7.68	7.58	7.55
6/21/78	AM	7.54	7.54	7-54	7.52	7.52	7.55	7.68	7.83	7.92	8.08	8,08	8.15
	PM	8.27	8.33	8.35	8.03	7.78	7.73	7.86	7.75	7.68	7.60	7.65	7.60
6/22/78	AM	7.53	7.52	7.50	7.52	7.53	7.53	7.53	7.62	7.72	7.85	7.92	8.02
	PM	8.07	8.15	8.19	8.25	8.31	8.12	8.13	7.90	7.72	7,63	7.60	7.55
6/23/78	AM	7.55	7.55	7.55	7.55	7.55	7.60	7.70	7 - 88	7.96			
9/07/78	AM											8,26	8.27
.,,	PM	8.20	8.14	8.30	8.52	8.63	8.58	8.22	7.91	7.66	7.57	7,52	7.48
9/08/78	MA	7.47	7.46	7.47	7.47	7.47	7.47	7.47	7.51	7.58	7.73	7.87	8.01
7700776	PM	8.06		8.21	8.13	7.94	7.84	7.74					
0/00/20			8.16	0.21					7.63	7.56	7.53	7.52	7.51
9/09/78	AM	7.51	7.53	7.53	7.54	7.55	7.54	7.59	7.74	7.90	8.16	8.40	8.55
	PM	8.65	8.73	8.76	8.78	8.78	8.70	8.55	8.17	7.80	7.56	7.39	7.57
9/10/78	AM	7.56	7.55	7.54	7.54	7.55	7.55	7.57	7.77	8.03	8.24	8.39	8.51
	PM	8.63	8.65	8.40	8.10	7.98	8.04	8.18	8.15	8.00	7.82	7.66	7.60
9/11/78	AM	7.54	7.53	7.53	7.53	7.55	7.54	7.56	7.79	7.85	8.06	8,23	8.41
	PM	8.58	8.68	8.74	8.80	8.82	8.75	8.56	8.24	7.83	7,66	7.60	7.56
9/12/78	AM	7.56	7.55	7.55	7.55	7.55	7.54	7.56	7.63	7.68	7.81	8.15	8.26
	PH	8.34	8.33	8.37	8.34	8.29	8.11	7.93	7.73	7.65	7.62	7.60	7.60
9/13/78	AM	7.60	7.60	7.60	7.60	7.60	7.61	7.63	7.75	8.10	8.26	8,42	8.55
-,, , 0	PM	8.65	8.71	8.76	8.78	8.76	8.65	8.45	7.95	7.80	1.67	7.64	7.60
9/14/78	AM	7.57	7.57	7.57	7.57	7.57	7.57	0.43	7.33	7.00	7.67	7.04	7.00
						-							

Table 23,—Diel measurements of water temperature, specific conductance, pH, and dissolved oxygen at selected sites--Continued

DISSOLVED OXYGEN, IN MILLIGRAMS PER LITER, AT INDICATED HOURS

				-			•					
DATE	1	2	3	4	5	6	7	8	9	10	11	12
10/06/76	AM				-			_	-	10.70	11.06	11.44
	PM 11.67	11.62	11.32	10.91	10.46	9.87	9.05	8.84	8.60	8.63	8,55	8.50
10/07/76	AM 8.54	8.55	8.58	8.57	8.61	8.60	8.75	9.11	10.16	10.67	11.10	10.80
	PM 10.67	10.71	10.83	10.52	9.95	9.36	9.00	8.94	8.84	8.85	9.04	9.06
10/08/76	AM 9.10	9.20	9.14	9.20	9.38	9.45	9.51	9.61	9.70	9.88	10.08	10.43
	PM 10.55	10.45	10.26	10.04	10.03	9.88	9.66	9.54	9.59	9.55	9.55	9.61
10/09/76	AM 9.57	9.67	9.73	9.73	9.71	9.70	9.80	9.91	9.99	10.15	10.00	10.14
	PM 10.66	10.56	10.36	10.60	10.71	10.81	10.90	11.04	11.09	11.01	11.06	11.06
10/10/76	AM 11.13	11.14	11.16	11.15	11.08	11.26	11.14	11.07	11.10	11.03	10.97	10.96
	PM 10.84	10.69	10.70	10.45	10.45	10.46	10.40	10.46	10.50	10.55	10.58	10.63
10/11/76	AM 10.68	10.70	10.77	10.87	10.73	10.85	10.91	10.96	10.96	11.00	10.96	10.75
	PM 10.60	10.36	10.06	10.28	10.02	10.06	10.08	10.05	10.15	10.30	10.38	10.47
10/12/76	AM 10.57	10.63	10.64	10.80	10.84	10.93	10.85	11.02	10.94	10.94	10.95	
4/12/78	PM			10.72	10.80	10.75	10.58	10.50	10.57	10.70	10.75	10.88
4/13/78	AM 10.93	10.98	11.07	11.10	11.20	11.30	11.60	11.95	12.00	11.90	11.72	11.50
	PM 11.25	11.03	10.88	10.72	10.68	10.63	10.48	10.43	10.52	10.68	10.78	11.00
4/14/78	AM 11.20	11.13	11.20	11.32	11.42	11.52	12.00	12.30	12.45	12.40	12.42	12.40
	PM 12.35	12.12	11.95	11.82	11.78	11.70	11.38	11.32	11.50	11.60	11.72	11.72
4/15/78	AM 11.75	11.83	11.87	11.90	11.95	12.12	12.35	12.72	13.02	13.08	12.95	12.93
	PM 12.82	12.70	12.65	12.63	12.54	12.25	12.00	11.83	11.90	11.93	12.12	12.25
4/16/78	AM 12.40	12.43	12.52	12.60	12.80	12.87	13.37	13.60	13.63	13.58	13.52	13.47
	PM 13.32	13.10	13.05	12.80	12.65	12.47	12.20	11.95	11.92	12.07	12.15	12.32
4/17/78	AM 12.53	12.68	12.73	12.73	12.75	12.90	13.26	13.70	13.78	13.52	13.12	12.92
	PM 12.85	12.55	12.27	12.03	11.85	11.73	11.40	11.15	11.23	11,35	11.48	11.65
4/18/78	AM 11.96	12.08	12.32	12.38	12.72	12.90	13.35	13.66	13.60	13.32	12.90	12.60
	PM 12.32	12.02	11.88	11.78	11.62	11.45	11.08	10.70	10.70	10.80	10.90	11.01
4/19/78	AM 11.20	11.35	11.33	11.40	11.50	11.55	11.72	12.01	12.32	12.63	12.92	12.90
	PM 12.97	13.00	12.92	12.70	12.28	12.00	11.68	11.48	11.45	11.42	11.40	11.40
4/20/78	AM 11.47	11.50	11.50	11.50	11.50	11.55	11.78	12.22	12.75	12.91	12.95	12,75
	PM 12.65	12.38	12.08									
6/14/78	PM 10.90	10.63	10.52	10.46	10.34	10.12	9.92	9.57	9.12	9.03	9.04	9.22
6/15/78	AM 9.25	9.40	9.60	9.70	9.82	10.02	10.60	11.21	11.45	11.45	11.24	11.06
	PM 10.97	10.67	10.40	10.28	10.10	9.80	9.52	9.03	8.55	8.46	8.55	8.69
6/16/78	AM 8.88	9.02	9.18	9.22	9.43	9.65	10.22	10.92	11.35	11.48	11.40	11.18
	PM 11.05	10.95	10.78	10.62	10.08	9.78	9.55	9.00	8.60	8.22	8.22	8.28
6/17/78	AM 8.41	8.50	8.50	8.57	8.65	8.72	9.10	9.42	9.75	10.15	10.45	10.60
	PM 10.50	10.35	10.22	10.12	10.00	9.75	9.25	8.82	8.52	8.45	8.45	8.45
6/18/78	AM 8.45	8.48	8.50	8.50	8.50	8.62	9.00	9.35	9.80	10.05	10.07	10.00
	PM 9.70	9.45	9.12	8.80	8.50	8.35	7.85	7.50	7.25	7.20	7.30	7.40
6/19/78	AM 7.45	7.70	7.82	7.87	7.95	7.93	8.00	8.06	8.26	8.28	8.32	8.45
	PM 8.58	8.66	8.64	8.67	8.75	8.60	8.50	B.30	8.10	8.10	8.18	8.27
6/20/78	AM 8.35	8.45	8.50	8.60	8.65	8.70	8.88	9.13	9.46	9.50	9.48	9.10
	PM 8.80	8.43	8.30	8.13	8.05	7.93	7.75	7.44	7.28	7.28	7.43	7.63
6/21/78	AM 7.73	7.86	7.95	8,05	8.12	8.26	8.70	9.13	9.12	9.12	9.00	9.06
	PM 9.06	8.93	8.62	7.88	7.70	7.85	8.08	7.98	7.85	7.85	7.90	7.90
6/22/78	AM 7.90	8.00	8.10	8.20	8.30	8.33	8.43	8.66	8.87	8.93	8.95	8.97
	PM 8.90	8.80	8.73	8.67	8,52	8.28	8.18	8.10	7.90	7.90	8.00	8.10
6/23/78	AM 8.20	8.35	8.47	8.60	8.70	8.80	9.20	9.55	9.72			
9/07/78	AH								_		9.52	9.55
	PM 9.00	9.05	10.05	10.06	10.05	9.40	8.28	7.80	7.68	7.75	7.88	8.03
9/08/78	AM 8.10	8.15	8.22	8.26	8.28	8.35	8.45	8.68	8.90	9.32	9.80	9.95
	PM 9.97	10.12	10.07	9.55	9.15	9.05	8.80	8.52	8.23	8.32	8.43	8.50
9/09/78	AH 8.50	8.48	8.55	8.65	8.72	8.72	9.00	9.63	10.05	10.75	11.05	10.90
0/10/20	PH 10.75	10.53	10.25	9.90	9.92	9.73	9.25	8.53	8.50	8,50	8.70	8.90
9/10/78	AM 9.05	9.15	9.28	9.41	9.50	9.60	9.88	10.38	11.13	11.50	11.53	11.36
0411470	PM 11.18	10.60	9.50	9.35	10.05	10.45	9.80	9.15	9.03	9.03	9.03	9.27
9/11/78	AM 9.28	9.32	9.35	9.31	9.30	9.27	9.36	9.87	10.20	10.80	11.0	11.33
0/12/20	PM 11.23	11.0	10.84	10.83	10.59	10.02	9.40	8.83	8.37	8.35	8.43	8.55
9/12/78	AH 8.65	8.70	8.75	8.78	8.78	8.80	B.92	9.45	9.50	9.80	10.52	10.40
0/13/30	PM 10.32	10.30	10.48	10.30	10.12	9.70	9.35	9.10	9.13	9.22	9.32	9.50
9/13/78	AM 9.55	9.58	9.70	9.65	9,68	9.70	9.95	10.60	11.25	11.50	11.53	11.35
0/11/20	PM 11.10	10.93	10.72	10.53	10.28	10.08	9.50	9.10	8.95	9.03	9.08	9.15
9/14/78	AM 9.32	9.40	9.48	9.53	9.65	9.72						

Table 23.—Diel measurements of water temperature, specific conductance, pH, and dissolved oxygen at selected sites—Continued

TEMPERATURE, IN DEGREES CELSIUS, AT INDICATED HOURS

DATE	1	2	3	4	5	6	7	8	9	10	11	12
4/20/76	PH	16.5	17.4	17.8	18.1	18.5	18.6	18.5	18.4	18,0	17.7	17.3
4/21/76	AM 16.8	16.2	15.6	15.0	14.4	13.8	13.3	12.9	13.0	13,3 19,4	14.1 19.1	14.9 18.7
4/22/76	PM 16.0 AM 17.9	17.2 17.3	18.2 16.7	19.0 16.2	19.4 15.8	19.8 15.3	19.8 14.9	19.8 14.7	19.7 14.4	14.7	14.9	15.2
4/23/76	PM 16.0 AM 16.2	16.8 15.4	17.5 14.8	18.0 14.4	18.5 13.7	18.6 13.2	18.5 12.7	18.4 12.5	18.2 12.5	17.9 12.8	17.5 13.5	16.8 14.3
	PM 15.2	16.8	17.6	18.1 12.5	18.3 11.6	18.4 11.2	18.3	18.0 10.5	17.6 10.2	17.1 10.1	16.5 9.9	15.5 9.9
4/24/76	AM 14.7 PM 10.4	13.8 10.9	13.1 11.4	11.6	11.8	11.8	11.8	11.8	11.7	11.8 9.1	11.5	11.1
4/25/76	AM 10.8 PM 9.8	10.4 9.9	10.2 10.0	9.9 10.1	9.7 10.1	9.4 10.2	9.2 10.2	9.2 10.2	9.1 10.0	9.8	9.7	9.6
4/26/76	AM 9.4 PM 7.4	9.0 7.5	8.8 7.6	8.5 7.7	8.2 7.8	7.9 7.7	7.8 7.3	7.7 7.0	7.6 6.8	7.5 6.3	7.4 6.0	7.4 5.7
4/27/76	AM 5.3	5.0	4.8	4.7	4.6	4.5	4.6	4.7	4.9	4.9		
4/21/77	PM				19.7	20.0	20.1	20.0	19.6	19.1	18.4	17.8
4/22/77	AM 17.1	16.6	16.0	15.6	15.1	14.6	14.3	14.4	14.8	15.4 17.7	15.9 17.4	16.5 17.0
4/22/27	PM 17-1 AM 16-7	17.6 16.3	18.2 15.9	18.4 15.6	18.6 15.3	18.5 14.9	18.3 14.5	18.3 14.3	18.1 14.1	14.0	14.2	14.4
4/23/77	PM 14.5	14.4	14.6	14.4	14.4	14.2	14.0	13.7	13.2	12.8	12.4	12.2
4/24/77	AM 11.9	11.4	11.2	10.9	10.6	10.4	10.3	10.3	10.4	10.5	10.5	10.8
	PM 11-1	11.2	11.2	11.2	11.1	10.8	10.5	10.3	10.0	9.8 8.4	9.5 8.7	9.3 9.0
4/25/77	AM 9.1 PM 9.5	8.8 10.3	8.6 10.5	8.5 10.8	8.3 10.7	8.2 10.4	8.3 10.0	8.3 9.7	8.3 9.4	9.0	8.8	8.7
4/26/77	PM 9.5 AM 8.5	8.2	8.0	7.8	7.5	7.4	7.4	7.6	7.9	8.9	9.6	9.9
4,20,,,	PM 10.8	11.0	11.0	10.9	10.6	10.2	9.8	9.7	9.3	9.0	8.8	8.6
4/27/77	AM 8.3	8.2	8.0	7.8	7.5	7.3	7.3					
3/23/78	PM		5.5	4.9	4.2	3.3	2.8	2.7	2.5	2.3	2.2	2.1
3/24/78	AM 2.0	1.9	1.8	1.7	1.7	1.7	1.7	1.6	1.5	1.9 2.0	2.5 1.6	3.2 1.3
2/25/70	PM 4.0	4.9 0.8	5.3 0.7	5.5 0.6	5.2 0.5	4.5 0.5	3.8 0.6	3.1 0.7	2.5 0.8	1.1	1.3	1.5
3/25/78	AM 1.0 PM 1.7	1.7	1.5	1.1	0.9	0.7	0.7	0.7	0.7	•		
4/03/78	PM				2.4	2.3	2.2	2.2	2.1	2.0	2.1	2.1 4.7
4/04/78	AM 2.1	2.2	2.2	2.2	2.2	2.2 6.2	2.3 5.9	2.4 5.7	2.7 5.5	3.2 5.3	3.7 5.1	5.0
4/05/78	PM 5.7 AM 4.9	6.5 4.8	7.1 4.8	6.9 4.8	6.6 4.9	4.7	4.7	4.6	4.5	4.4	4.5	4.7
4/03//0	PH 4.9	5.2	5.7	5.9	5.8	5.6	5.5	5.1	4.8	4.6	4.5	4.3
4/06/78	AN 4.1	3.7	3.4	3.1	2.9	2.6	2.5	2.6	3.1	3.9	4.8	5.6
	PM 6.2	6.6	6.8	6.6	6.4	6.1	5.9	5.6	5.3	5.2	5.0	4.9 7.2
4/07/78	AM 4.7	4.6	4.4	4.3 11.6	4.3 11.1	4.2 10.6	4.2 9.7	4.4 8.8	4.8 8.1	5.6 7.6	6.7 7.2	6.7
4/08/78	PK 9.3 AM 6.1	10.3 5.6	11.1 5.1	4.7	4.3	4.2	4.1	4.0	4.2	5.0	5.7	6.3
4/00//0	PM 6.8	7.2	8.2	8.1	8.0	7.1	7.4	6.9	6.5	6.1	5.8	5.4
4/09/78	AM 5.0	4.7	4.3	4.0	3.8	3.5	3.2	3.4	3.7	4.7	5.9	6.4
	PM 7.7	8.6	9.2	9.3	9.2	8.6	7.8	7.1	6.4	5.8 4.4	5.4 5.0	5.1 5.8
4/10/78	AM 4.8 PM 6.2	4.5 7.0	4.4 7.9	4.2 8.7	3.9 9.0	3.8 9.0	3.6 8.7	3.6 8.0	3.8 7.6	7.2	6.9	6.5
4/11/78	AM 6.4	6.3	6.2	6.3	6.2	6.3	6.3	6.5	6.8	7.3	8.3	9.6
4,22,10	PM 10.8	11.8	12.5	12.2	11.8	11.2	10.4	9.6	9.0	8.6	8.0	7.6
4/12/78	AM 7.1	6.7	6.3	6.1	5.8	5.7	5.7	5.7	6.1			
4/22/28	PM 18.3	18.7	19.2	19.7	20.4	21.1	21.5	21.8	21.9	21.8	21.7	21.3
6/23/78 6/24/78	AM 21.1	20.6	20.1	19.5	18.9	18.4	17.8	17.3	17.0	17.2	17.7	18.2
0,24,10	PM 18.8	19.3	19.9	20.5	20.9	21.4	21.8	22.0	22.0	21.9	21.8	21.7
6/25/78	AM 21.5	21.3	20.8	20.3	19.8	19.3 21.3	18.8	18.4 21.8	18.0 21.8	18.2 21.7	18.7 21.6	19.1 21.4
4 104 198	PM 19.5 AM 21.3	19.8 21.2	20.1 20.8	20.7 20.5	21.0 20.2	19.8	21.6 19.5	19.3	19.3	18.9	18.8	18.7
6/26/78	PM 18.6	18.3	18.3	18.3	18.5	18.8	19.1	19.2	19.2	19.2	19.2	19.2
6/27/78	AM 19.2	19.3	19.2	19.2	19.1	19.1	19.1	19.1	19.2	19.3	20.0	21.0
	PM 22.0	22.8	23.2	23.2	23.1	23.1	23.2	23.7	24.1	24.3 21.1	24.2 21.1	24.0 21.6
6/28/78	AM 23.8 PM 22.2	23.5 22.7	23.2 23.1	22.8 23.3	22.3 23.6	21.8 23.8	21.4 23.8	21.0 23.8	21.0 23.8	23.4	23.3	23.1
6/29/78	AM 22.8	22.3	22.0	21.7	21.3	20.7	20.3	20.1	20.1	20.3	20.7	21.3
7, 27, 10	PM 22.0	22.2	22.3	22.6	22.7	22.8	22.8	23.0	23.1	23.1	22.9	22.7
6/30/78	AM 22.6	22.3	22.1	21.8	21.4	21.1	20.8	20.6	20.7	21.0 22.1	21.6 21. 6	22.2 21.5
7/01/78	PK 22.7 AM 21.2	23.1 20.8	23.3 20.6	23.4 20.2	23.4 19.8	23.2 19.3	22.8 18.9	22.6 18.6	22.3 18.7	18.9	19.5	20.0
1/01//8	PH 20.7	20.9	21.0	20.9	20.8	20.3	20.1	19.8	19.5	19.3	19.2	18.9
7/02/78	AN 18.8	18.7	18.3	18.2	17.8	17.6	17.2	17.0	17.1	17.6	18.2	18.8
	PH 19.2	19.7	20.0	20.2	20.0	19.8	19.6	19.3	19.0	18.8 17.6	18.7 17.6	18.6 17.6
7/03/78	AM 18.5	18.4 17.4	18 · 3 17 · 2	18.2 17.1	18.0 16.9	17.9 16.8	17.8 16.7	17.7 16.4	17.7 16.2	16.2	16.2	16.2
7/04/78	PM 17.5 AM 16.0	15.8	13.7	15.7	15.5	15.3	15.2	15.1	15.0	14.9	14.9	15.1
	PM 15.3	15.6	15.8	16.0	16.2	16.3	16.6	16.8	17.0	17.0	16.9	16.8
7/05/78	AN 16.8	16.8	16.7	16.7	16.7	16.5	16.3	16.2	16.3			
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Table 23.—Diel measurements of water temperature, specific conductance, pH, and dissolved oxygen at selected sites -- Continued

			SPECIFIC	CONDUCTANCE,	IN MICROPHOS	PER CE	NTIMETER AT 25	DEGREES	CELSIUS,	AT INDICATED	HOURS		
DATE		1	2	3	4	5	6	7	8	9	10	11	12
4/20/76	PM		179	187		179	173	176	180	184	180	190	183
4/21/76	AM	183	18	186	189	193	193	197	197	189	195	187	193
	PM	183	180	186	179	181	178	182	180	186	193	189	198
4/22/76	AM	191	19		199	194	192	190	178	178	191	189	190
	PM	191	180			178	177	183	184	183	190	190	185
4/23/76	AM	190	19:		192	197	192	198	197	189	193	192	193
	PM	193	19			183	193	192	187	188	199	191	195
4/24/76	AM	201	190		199	200	199	200	196	192	194	189	192
/ Int 13/	PM	192	19		190	191	189	193	192	193	187	186	191
4/25/76	AM	193 184	194		190	193	191	185	189	185	187	185	183
4/26/76	PM AM	198	189 199		188 195	199	197 189	198 193	198 187	194 192	200 187	203 185	194
4/20//0	PM	182	18:		183	188 185	179	182	187	188	180	180	189 186
4/27/76	AM	181	180		180	179	183	180	179	176	179	100	160
4,2,,,0		-01			200	4,,		100	-,,	1,0			
4/21/77	PM					129	132	136	139	148	149	148	152
4/22/77	AM	157	159	169	163	167	173	174	176	173	169	170	161
	PM	168	150		160	155	155	154	157	164	161	163	172
4/23/77	AM	177	176		182	180	185	178	185	183	172	178	169
	PM	167	17:	169	163	162	164	165	163	173	172	173	168
4/24/77	AM	169	163	L 159	154	141	148	149	150	149	140	138	137
	PM	139	130		136	133	132	131	130	136	134	135	134
4/25/77	AM	130	128		132	131	131	128	124	125	125	123	122
	PM	119	124			119	124	120	126	124	124	125	123
4/26/77	AM	125	12		123	121	125	122	124	121	116	118	116
	PM	119	115		119	121	122	121	123	121	125	122	121
4/27/77	AM	121	125	121	122	125	125	124					
3/23/78	PM			76	73	70	68	70	72	74	77	78	78
3/24/78	AM	80	8:		83	84	94	85	86	88	87	78 87	88
3/24//0	PM	87	89		89	90	91	92	94	95	95	96	96
3/25/78	AM	97	9		97	97	97	97	99	99	99	99	98
3,23,70	PM	99	,		98	99	99	98	98	98	,,	,,	,,,
			-	, ,,	,,,	• • •			••	,,			
4/03/78	PM					87	87	88	90	87	89	88	90
4/04/78	MA	91	9(92	91	91	93	93	93	93	93	94	92
	PM	92	93			98	97	96	97	100	101	102	101
4/05/78	AM	101	100	99	99	99	100	100	100	100	99	100	98
	PM	97	90		95	95	94	95	96	97	95	95	96
4/06/78	AM	96	98		96	97	97	96	94	91	91	91	91
	PM	92	89		92	93	95	93	95	93	94	95	96
4/07/78	AM	98	102		103	99	98	100	98	97	95	93	94
	PM	92	92		89	88	89	88	90	89	90	89	88
4/08/78	AM PM	88 85	81		86	88	87	88	89	86	86	85	85
4/09/78	AM	93	8:		85 92	84 94	87 95	88 96	90 95	91 93	90 90	91 91	91 90
4/05//6	PM	90	90		90	91	93	94	96	97	97	98	
4/10/78	MA	100	10		99	98	102	102	101	96	94	96	98 94
4/10//0	PM	96	90		92	94	95	95	98	97	99	99	98
4/11/78	MA	100	10		100	100	100	101	100	100	99	97	96
•	PM	94	9		96	99	99	100	101	103	104	104	104
4/12/78	AM	104	10:	3 101	100	100	99	101	98	96			
6/23/78	PM	196	190		194	193	191	192	193	194	196	196	196
6/24/78	AM	198	199		199	202	203	203	204	205	206	204	202
4 /05 /70	PM	198	190		196	195	194	193	193	194	195	197	198
6/25/78	AM PM	196 202	198		200	200	201	201	202	204	206	205	204
6/26/78	AM.	196	201 191		196 198	195 199	195 201	194 201	194 200	196 203	195 203	197 203	196 202
0/20//0	PM	202	20:		200	200	201	200	198	199	200	199	197
6/27/78	AH	196	190		197	197	197	199	199	198	198	198	196
-,-,,,,	PM	196	196		196	196	198	197	198	198	197	198	199
6/28/78	AM	198	190		197	195	195	194	195	196	198	200	200
	PM	199	19		197	197	198	199	199	199	200	202	201
6/29/78	AM	203	200		206	207	208	209	209	209	209	208	209
	PM	209	20		204	204	204	202	204	204	203	204	206
6/30/78	AH	207	208		208	208	209	209	209	208	208	207	207
£	PM	208	200		206	205	205	205	205	206	208	209	209
7/01/78	AM	209	209		210	211	211	211	212	210	210	208	207
7/00/170	PH	208	201		208	205	206	206	207	209	208	209	210
7/02/78	AM	209	210		212	211	212	212	212	210	209	207	205
7/03/78	PM	206	205		206	205	205	206	206	207	210	209	210
//03//8	AM PM	210	210			209	210	209	210	209	209	208	209
7/04/78	PM AM	207	201 201			210 200	208 198	206 197	204 196	203 197	202 197	202 196	203 194
1104110	PM	193	19			193	193	196	196	197	197	198	200
7/05/78	MA	202	20			204	204	205	204	205	• / /	470	200
.,,		_02	-0.		203		•••		-07				

Table 23.--Diel measurements of water temperature, specific conductance, pH, and dissolved oxygen at selected sites--Continued

PH, IN UNITS, AT INDICATED HOURS

				rn, 1	N UNIIS, A	I INDICATED	HOURS					
DATE	1	2	3	4	5	6	7	8	9	10	11	12
4/20/76	PM	8.18	8.47	8.44	8.55	8.61	8.57	8.54	8.34	8.07	7.77	7.46
4/21/76	AM 7.40	7.18	7.13	7.20	7.17	7.17	7.08	7.25	7.27	7.43	7.52	7.80
	PM 8.02	8.15	8.27	8.47	8.46	8.52	8.38	8.20	8.07	7.80	7.52	7.27
7/22/76	AM 7.15	7.11	7.08	7.04	7.10	7.10	7.03	7.16	7.21	7.24	7.32	7.55
4/23/76	PM 7.69 AM 7.40	7 .9 8 7 .2 9	8.08 7.23	8.32 7.18	8.35 7.10	8.40 7.18	8.48	8.40	8.25 7.43	7.93	7.73 7.83	7.44 7.78
4/23/16	PM 8.00	8.32	8.42	8.49	8.52	8.48	7.15 8.54	7.32 8.27	8.15	7.57 7.8 6	7.67	7.52
4/24/76	AM 7.44	7.25	7.26	7.14	7.07	7.15	7.18	7.31	7.36	7.35	7.44	7.60
	PM 7.70	7.97	8.13	8.18	8.24	8.33	8.27	8.01	7.90	7.70	7.58	7.48
4/25/76	AM 7.42	7.32	7.18	7.16	7.15	7.16	7.27	7.31	7.36	7.33	7.46	7.55
	PM 7.65	7.72	7.70	7.78	7.68	7.71	7.63	7.55	7.46	7.43	7.37	7.27
4/26/76	AM 7.31	7.25	7.27	7.28	7.28	7.28	7.33	7.40	7.61	7.64	7.78	7.79
1.107.174	PM 7.88	7.98	8.03	8.17	8.13	8.15	8.03	7.94	7.86	7.52	7.47	7.34
4/27/76 4/21/77	AM 7.35	7.42	7.40	7.41	7.40	7.42	7.47	7.49	7.58	7.55		
4/41///	PM				8.80	8.79	8.76	8.66	8.55	8.43	8.23	7.99
4/22/77	AM 7.35	7.06	6.99	6.96	7.06	7.05	7.05	7.27	7.55	7.73	8.03	8.29
	PM 8.50	8.66	8.66	8.83	8.85	8.83	8.65	8.65	8.42	8.25	7.91	7.48
4/23/77	AM 7.06	6.90	6.95	6.93	6.83	6.84	7.02	6.88	7.06	7.16	7.36	7.73
	PM 7.84	8.15	8.24	8.18	8.42	8.22	8.09	7.59	7.31	7.09	7.15	7.16
4/24/77	AM 7.10	7.16	7.14	7.06	7.01	6.90	6.92	6.94	7.07	6.99	7.05	7.23
4/25/77	PM 7.30 AM 7.06	7.23	7.29 7.03	7.24 6.99	7.07 6.96	7.00 6.99	7.10 7.03	6.96	6.96 7.30	7.05 7.36	7.07 7.55	6.97 7.60
4/23///	PH 7.74	7.05 7.84	7.03	7.92	7.84	7.67	7.48	7.10 7.26	7.13	7.06	6.97	6.96
4/26/11	AM 6.96	7.09	7.03	6.89	7.01	6.96	7.04	7.34	7.54	7.75	7.92	8.03
,	PM 8.05	8.10	8.07	7.97	7.86	7.71	7.59	7.31	7.12	7.04	6.93	7.01
4/27/77	AM 7.01	7.02	6.95	6.96	6.94	6.95	7.07					
3/23/78	PM		7.03	7.04	7.04	7.06	7.08	7.08	7.09	7.08	7.10	7.10
3/24/78	AM 7.10 PM 7.08	7.11 7.08	7.10 7.12	7.12 7.16	7.12 7.14	7.12 7.12	7.12	7.08	7.07 7.13	7.11	7.09 د 7.1	7.09 7.13
3/25/78	AM 7.07	7.05	7.04	7.03	7.00	7.00	7.13 7.02	7.15 7.05	7.07	7.12 7.05	7.03	7.02
3/23//0	PM 7.07	7.09	7.09	7.10	7.10	7.08	7.02	7.07	7.05	7.03	7.03	7.02
								,				
4/03/78	PM				7.31	7.37	7.37	7.37	7.38	7.35	7.38	7.41
4/04/78	AM 7.42	7.36	7.40	7.37	7.32	7.36	7.34	7.42	7.40	7.47	7.49	7.51
	PM 7.54	7.56	7.58	7.39	7.51	7.44	7.43	7.41	7.42	7.43	7.42	7.41
4/05/78	AM 7.44	7.46	7.43	7.46	7.46	7.44	7.33	7.47	7.53	7.55	7.55	7.53
4/06/78	PM 7.58 AM 7.32	7.58 7.35	7.55 7.26	7.58 7.26	7.59 7.16	7.53 7.07	7.50 7.10	7.46 7.14	7.42 7.10	7.40 7.10	7.36 7.06	7.35 7.05
4/00//8	PM 7.01	6.94	6.86	6.86	6.66	6.71	6.60	6.40	6.46	6.45	6,48	6.41
4/07/78	AM 6.36	6.46	6.42	6.33	6.47	6.27	6.45	6.29	6.24	6.50	6.59	6.73
	PM 6.76	6.77	6.83	6.81	6.84	6.80	6.76	6.77	6.68	6.76	6.74	6.75
4/08/78	AM 6.75	6.73	6.84	6.75	6.76	6.76	6.80	6.72	6.92	6.97	7.01	6.99
1.100.170	PM 7.13	7.15	7.16	7.17	7.17	7.14	7.10	7.02	6.99	7.03	7.01	7.03
4/09/78	AM 7.03 PM 7.27	7.07	7.03 7.36	7.03	7.03 7.36	7.Q3 7.31	7.03	7.16 7.09	7.1° 7.11	7.21 7.05	7.25 7.07	7.26 7.06
4/10/78	AM 7.09	7.33 7.10	7.07	7. 36 7.07	7.03	7.07	7.23 7.07	7.17	7.11	7.03	7.30	7.33
4,10,70	PM 7,35	7.40	7.43	7.45	7.42	7.43	7.31	7.24	7.16	7.13	7.12	7.13
4/11/78	AM 7.10	7.14	7.12	7.11	7.11	7.10	7.13	7.21	7.30	7.37	7.47	7.55
	PM 7.60	7.66	7.63	7.53	7.40	7.27	7.21	7.18	7.19	7.16	7.15	7.13
4/12/78	AM 7.14	7.20	7.14	7.14	7.13	7.12	7.16	7.26	7.36			
(122/20	Dec 7 52	7 *4	7.60	7.63	7.66	7 50		7 76	7 70	7.43	7.60	7 5/
6/23/78 6/24/78	PM 7.53 AM 7.50	7.56 7.40	7.36	7.63 7.32	7.28	7.68 7.25	7.73 7.25	7.75 7.26	7.72 7.34	7.67 7.43	7.49	7.54 7.54
0/24//0	PM 7.56	7.56	7.53	7.46	7,46	7.50	7.56	7.60	7.60	7.56	7.53	7.49
6/25/78	AM 7.46	7.43	7.36	7.33	7.30	7.25	7.25	7.27	7.30	7.37	7.52	7.49
	PM 7.50	7.56	7.57	7.60	7.64	7.66	7.68	7.69	7.63	7.58	7.54	7.51
6/26/78	AM 7.48	7.45	7.43	7.37	7.34	7.30	7.26	7.26	7.27	7.26	7.25	7.26
	PM 7.28	7.29	7.31	7.36	7.36	7.43	7.46	7.44	7.43	7.41	7.40	7.41
6/27/18	AM 7.41 PM 7.49	7.39 7.53	7.37 7.55	7.34 7.54	7.32 7.52	7.30	7.26	7.24	7.25	7.32	7.37	7.40
6/28/78	AM 7.33	7.27	7.24	7.21	7.18	7.53 7.17	7.54 7.18	7.54 7.19	7.54 7.23	7.50 7.32	7.45 7.34	7.37 7.40
0/10/70	PM 7.45	7.51	7.56	7.60	7.66	7.56	7.45	7.42	7.37	7.37	7.39	7.37
6/29/78	AM 7.37	7.36	7.33	7.31	7.26	7.24	7.24	7.24	7.26	7.33	7.36	7.42
	PM 7.46	7.51	7.54	7.54	7.56	7.61	7.63	7.63	7.60	7.56	7.48	7.45
6/30/78	AM 7.42	7.35	1.35	7.35	7.32	7.28	7.28	7.27	7.31	7.34	7.41	7.46
3/01/20	PM 7.49	7.52	7.56	7.56	7.61	7.63	7.60	7.60	7.57	7.55	7.48	7.45
7/01/78	AM 7.44	7.43	7.41	7.36	7.34 7.76	7.28	7.29	7.30	7.35	7.36	7.46	7.53
7/02/78	PM 7.63 AM 7.56	7.68 7.56	7.71 7.54	7.74 7.51	7.48	7.75 7.44	7.72 7.41	7.68 7.42	7.65 7.43	7.63 7.53	7.60 7.68	7.58 7.74
1106110	PM 7.83	7.89	7.96	8.06	8.04	8.03	8.00	7.96	7.88	7.83	7.78	7.76
7/03/78	AM 7.73	7.72	7.69	7.64	7.56	7.53	7.50	7.47	7.50	7.51	7.46	7.46
	PM 7.47	7.48	7.49	7.52	7.53	7.56	7.60	7.56	7.55	7.55	7.53	7.52
7/04/78	AM 7.51	7.47	7.44	7.38	7.36	7.28	7.29	7.27	7.32	7.37	7.43	7.51
	PM 7.63	7.68	7.78	7.90	8.01	8.04	8.34	8.24	8.25	8.20	8.13	7.97
7/05/78	AM 7.87	7.77	7.68	7.59	7.53	7.45	7.41	7.36	7.46			

Table 23.—Diel measurements of water temperature, specific conductance, pH, and dissolved oxygen at selected sites—Continued

DISSOLVED OXYGEN, IN MILLIGRAMS PER LITER, AT INDICATED HOURS

DISSOLVED OXYGEN, IN MILLIGRAMS PER LITER, AT INDICATED HOURS												
DATE	1	2	3	4	5	6	7	8	9	10	11	12
4/20/76	PM T	11.87	11.80	11.76	11.58	11.13	10.35	9.46	8.68	8.26	7.63	7.48
4/21/76	AH 7.30	7.20	7.40	7.46	7.60	7.82	8.14	8.46	9.41	10.11	10.65	11.23
.,,	PM 11.59	12.03	12.06	11.73	11.53	10.73	10.20	9.08	8.32	7.47	7.06	6.77
4/22/76	AM 6.74	6.73	6.66	6.73	6.93	7.05	7.43	7.58	8.25	8.80	9.46	10.00
	PM 10.43	10.94	11.03	11.12	10.99	10.82	10.14	9.40	8.66	8.03	7.70	7.58
4/23/76	AM 7.30	7.35	7.35	7.46	7.70	7.80	8.17	8.94	9.46	10.24	10.93	11.20
	PM 11.52	11.96	11.82	11.67	11.38	10.83	9.98	9.07	8.42	7.81	7.64	7.40
4/24/76	AM 7.38	7.44	7.35	7.76	7.77	8.27	8.80	9.39	9.70	10.36	10.76	11.05
	PM 11.50	11.92	12.07	12.12	11.95	11.92	11.15	10.57	10.13	9.63	9.23	8.92
4/25/76	AM 8.65	8.60	8.63	8.77	8.96	9.05	9.26	9.75	9.75	10.20	10.46	10.70
	PM 10.96	10.65	10.58	10.66	10.57	10.45	9.98	9.73	9.50	9.23	9.25	9.15
4/26/76	AM 9.36	9.40	9.40	9.60	9.76	9.79	10.21	10.67	11.28	11.24	11.64	11.56
	PM 11.92	12.04	12.12	12.23	12.20	11.98	11.65	11.33	11.02	10.74	10.76	10.96
4/27/76	AM 11.05	11.05	11.25	11.24	11.16	11.53	11.57	12.07	12.36	12.44		
4/21/77	PH				11.95	11.29	10.09	9.31	8.61	8.02	7.67	7.59
4/22/77	AM 7.56	7.51	7.80	7.80	8.00	8.38	8.79	9.59	9.37	10.00	11.71	12.14
	PM 12.38	12.19	11.93	11.39	10.79	10.18	9.44	9.06	8.49	7.99	7.87	7.69
4/23/77	AM 7.45	7.40	7.50	7.70	7.76	8.00	8.36	8.59	9.08	9.71	10.47	11.01
	PM 11.21	11.21	11.28	11.06	10.69	10.11	9.72	9.19	9.00	8.89	9.13	9.31
4/24/77	AM 9.33	9.51	9.59	9.62	9.78	9.69	10.03	10.00	10.00	10.16	10.33	10.40
	PM 10.57	10.52	10.23	10.11	10.16	10.03	10.03	9.99	10.00	10.07	10.18	10.31
4/25/77	AM 10.38	10.48	10.33	10.33	10.60	10.70	10.80	11.09	11.04	11.31	11.51	11.75
	PM 11.60	11.58	11.30	11.19	10.85	10.93	10.60	10.22	10.22	10.21	10.44	10.42
4/26/77	AM 10.55	10.39	10.47	10.64	10.67	10.84	11.27	11.90	12.20	12.11	11.73	11.81
	PM 11.82	11.71	11.10	10.89	10.90	11.11	11.01	10.46	10.28	10.17	10.30	10.21
4/27/77	AM 10.31	10.63	10.57	10.70	10.57	10.77	11.30					
					10 / 7	12.02	12.00	12.00	12.00			
3/23/78	PM		12.10	12.30	12.47	12.82	13.00	12.92	13.02	13.10	13.10	13.12
3/24/78	AM 13.12	13.12	13.10	13.15	13.15	13.12	13.08	13.12	13.32	13.40	13.30	13.10
	PM 12.88	12.55	12.38	12.30	12.20	12.30	12.52	12.60	12.70	12.93	13.12	13.20
3/25/78	AM 13.40	13.75	13.70	13.68	13.80	13.80	13.80	13.80	13.80	13.80	13.70	13.60
	PM 13.60	13.48	13.30	13.33	13.43	13.52	13.60	13.60	13.60			
						12.40	12.12	12.44	12.40			
4/03/78	PM				13.53	13.48	13.43	13.42	13.40	13.40	13.33	13.35
4/04/78	AM 13.35	13.32	13.30	13.30	13.22	13.22	13.27	13.28	13.30	13.30	13.22	13.24
1 10= 130	PM 12.88	12.60	12.30	11.93	11.85	11.80	11.75	11.85	11.97	12.05	12.10	12.15
4/05/78	AM 12.10	12.30	12.25	12.23	12.20	12.27	12.33	12.37	12.48	12.50	12.55	12.55
	PH 12.52	12.50	12.43	12.30	12.32	12.27	12.20	12.15	12.28	12.30	12.33	12.55
4/06/78	AM 12.70	12.75	12.92	12.90	13.08	13.14	13.32	13.45	13.50	13.38	13.07	12.72
	PM 12.55	12.35	12.20	12.10	12.07	12.07	12.03	12.03	12.15	12.18	12.28	12.52
4/07/78	AM 12.55	12.62	12.68	12.65	12.55	12.68	12.68	12.70	12.76	12.80	12.60	12.30
1.100.170	PM 11.86	11.54	11.29	11.08	11.06	11.07	11.15	11.15	11.37	11.53	11.60	11.88
4/08/78	AM 12.15	12.30	12.48	12.62	12.68	12.75	12.88	13.05	13.20	13.15	12.96	12.85
/ /00 / 70	PM 12.75	12.53	12.20	12.12	12.05	12.13	12.15	12.25	12.23	12.35	12.40	12.72
4/09/78	AM 12.90	12.95	13.08	13.30	13.40	13.52	13.68	13.86	13.93	13.92	13.62	13.35
//10/70	PM 13.07	12.65	12.35	12.30	12.28	12.13	12.10	12.12	12.30	12.48	12.52	12.70
4/10/78	AM 12.75	12.85	12.88	12.95	13.00	13.13	13.35	13.55	13.75	13.70	13.55	13.28
6/11/20	PM 13.18	12.98	12.82	12.50	12.07	11.95	11.90	11.70	11.68	11.65	11.85	12.05
4/11/78	AM 12.15	12.10	12.12	12.20	12.23	12.20	12.28	12.50	12.70	12.75	12.72	12.50
4/10/70	PM 12.15	11.87	11.60	11.20	10.97	10.95	11.05	11.13	11.30	11.75	12.03	12.12
4/12/78	AM 12.13	12.34	12.47	12.55	12.65	12.88	13.10	13.38	13.33			
6/23/78	PM 9.20	9.37	9.45	9.45	9.36	9.27	9.13	8.81	8.40	8.09	7.68	7.50
6/24/78	AM 7.25	7.11	6.95	6.87	6.87	6.88	7.04	7.26	7.45	7.77	8.10	8.44
7127110	PM 8.79	9.01	9.03	8.69	8.63	8.70	8.69	8.62	8.35	8.00	7.71	7.42
6/25/78	AM 7.15	6.96	6.79	6.62	6.60	6.60	6.63	6.77	7.07	7.31	7.57	7.84
0,23,10	PM 8.27	8.56	8.80	8.98	9.11	9.15	7.03	8.74	8.38	8.10	7.75	7.53
6/26/78	AM 7.40	7.17	6.90	6.72	6.63	6.60	6.61	6.63	6.68	6.80	7.07	7.22
-, -0, 70	PM 7.45	7.58	7.79	8.00	8.12	8.30	8.34	8.23	8.10	7.94	7.85	7.72
6/27/78	AM 7.62	7.61	7.50	1.24	7.10	6.90	6.90	6.98	7.12	7.33	7.64	7.72
7121110	PM 8.27	8.38	8.38	8.29	8.08	7.93	7.85	7.72	7.12	7.11	6.67	6.42
6/28/78	AM 6.18	5.92	5.85	5.80	5.82	5.87	6.00	6.14	6.32	6.50	6.79	7.16
-, -0, 10	PM 7.67	8.04	8.11	8.37	8.25	7.74	7.09	6.78	6.65	6.67	6.65	6.60
6/29/78	AM 6.42	6.33	6.20	6.13	6.04	6.05	6.06	6.33	6.62	6.83	7.11	7.34
-, -,, , ,	PM 7.62	7.83	7.88	8.06	8.13	8.15	8.12	7.93	7.64	7.25	7.00	6.72
6/30/78	AM 6.64	6.43	6.35	6.20	6.11	6.08	6.10	6.29	6.51	6.80	7.12	7.37
3, 30, 70	PM 7.59	7.70	7.83	7.94	7.96	8.03	7.99	7.88	7.70	7.43	7.18	7.00
7/01/78	AM 6.85	6.72	6.60	6.55	6.43	6.41	6.38	6.56	6.75	7.08	7.10	8.00
.,	PH 8.32	8.54	8.75	8.89	8.92	8.92	8.87	8.69	8.38	8.15	7.99	7.86
7/02/78	AM 7.65	7.58	7.43	7.35	7.20	7.12	7.08	7.15	7.52	7.90	8.32	8.78
,, 02, 10	PM 9.06	9.30	9.54	9.72	9.71	9.62	9.43	9.23	8.98	8.67	8.40	8.15
7/03/78	AM 7.92	7.73	7.60	7.43	7.25	7.11	7.00	7.12	7.44	7.57	7.60	7.62
,,03,70	PM 7.63	7.80	7.85	8.04	8.11	8.50	8.61	8.51	8.36	8.30	8.20	8.10
7/04/78	AM 7.93	7.75	7.55	7.38	7.30	7.18	7.18	7.21	7.56	7.86	8.25	8.63
,,,,,,,,	PM 9.08	9.42	9.57	9.80	9.90	9.88	9.90	9.87	9.52	9.13	8.88	8,57
7/05/78	AM 8.11	7.87	7.68	7.45	7.33	7.15	7.10	7.27	7.83	2123	0.00	0.1/
.,,				, 173			10					

Table 23.--Diel measurements of water temperature, specific conductance, pH, and dissolved oxygen at selected sites--Continued

COWANESQUE RIVER AT NELSON

				CC	WANESQUE R.	TARK WI WE	LSUM					
			TEM	PERATURE,	IN DECREES	CELSIUS, A	T INDICAT	ERUOH CLE				
DATE	1	2	3	4	5	6	7	8	9	10	11	12
3/07/77	PM			2.0	2-0	2.1	2.1	2.0	1.9	1.7	11 1.5	12 1.4
3/08/77	AM 1.4	1.2	0.9	0.7	0.5	0.2						
4/14/77	PM		16.1	16.2	16.1	15.7	15.2	14.7	14.1	13.3	12.7	12.1
4/15/77	AM 11.5	10.9	10.4	9.8	9.3	8.8	8.5	8.6	9.1	9.9	10.9	12.0
/ /16 /27	PM 13.0	14.0	14.7	15.0	15.0	14.8	14.3	13.8	13.2	12.6	12.0	11.5
4/16/77	AM 11.0 PM 12.8	10.5 13.7	10.0 15.3	9.5 15.8	9.0 15.7	8.6 15.4	8.3 15.2	8.5 13.7	9.0 13.1	9.7 12.5	10.7 12.0	11.8 11.4
4/17/77	AM 10.9	10.5	10.0	9.5	9.1	8.7	8.5	8.8	9.3	10.2	11.2	12.3
	PM 13.5	14.5	15.3	15.8	16.0	15.8	15.4	15.0	14.4	13.8	13.1	12.4
4/18/77	AM 11.8 PM 12.8	11.2 13.2	10.7 13.7	10.2 14.1	9.7 14.2	9.3 13.8	9.0 13.6	9.3 13.2	10.0 12.9	10.8 12.6	11.7 12.1	12.3 11.8
4/19/77	AM 11.5	11.2	10.9	10.7	10.5	10.4	10.3	10.4	10.7	10.8	11.6	12.4
	PM 13.6	14.6	15.3	15.8	16.1	16.3	16.3	16.2	15.8	15.3	14.9	14.5
4/20/77	AM 14.2 PM 16.0	13.8 16.5	13.5 16.6	13.2 17.1	12.9 17.3	12.7 17.2	12.6 16.8	12.8 16.4	13.0 16.1	13.6 15.7	14.4 15.3	15.2 14.7
4/21/77	AM 14.4	14.0	13.7	13.4	13.2	13.0	12.9	12.9	13.2	14.0	13.3	2417
					S PER CENTI							
DATE 3/07/77	1 PM	2	3	4 140	\$ 123	6 120	7 121	8 124	9 128	10 150	11 153	12 152
3/08/77	AM 151	145	143	139	140	137	121	124	140	150	100	
4/14/77	PM	200	200	192	204	194	196	196	197	204	206	209
4/15/11	AM 205 PM 211	209 207	209 211	217 211	225 211	233 205	232 201	226 210	232 207	229 209	219 214	220 211
4/16/77	AM 212	228	229	232	232	221	224	223	220	219	212	212
	PM 211	215	209	205	211	207	206	213	214	212	212	218
4/17/77	AM 213 PM 219	217 219	223 207	217 210	225 217	220 218	225 208	223 216	223 212	213 209	215 211	209 218
4/18/77	AM 221	221	223	224	222	221	222	216	215	213	218	218
	PM 208	205	214	206	208	210	210	212	211	211	210	215
4/19/77	AM 217 PM 212	212 211	213 203	217 207	213 206	211 207	213 198	219 197	210 204	213 207	208 207	212 210
4/20/77	AM 203	204	206	211	213	213	206	215	211	204	212	211
	PM 208	212	203	208	209	213	204	213	203	203	209	212
4/21/77	AM 217	221	222	222	223	226	222	225	229	230		
				pH,	IN UNITS, A	T INDICATE	D HOURS					
DATE	1	2	3	4	5	6	7	8	9	10	11	12
3/07/77	P.M.	-	-	6.90	6.26	6.30	6.31	6.29	6.22	6.38	6.40	6.39
3/08/77	AM 6.38	6.38	6.44	6.37	6.38	6.35						
4/14/77	PM		9.09	9.05	9.06	8.90	9.10	8.99	8.78	8.74	8.57	8.20
4/15/77	AM 7.87	7.55	7.27	7.20	7.14	7.25	7.26	7.35	7.45	7.75	8.00	8.33
	PM 8.65	8.75	8.85	9.00	9.02	9.10	9.02	8.99	9.01	8.89	8.67	8.39
4/16/77	AM 7.94 PM 8.65	7.69 8.80	7.46 8.86	7.35 8.95	7.26 9.07	7.34 9.05	7.28 9.05	7.45 9.06	7.49 9.01	7.67 8.95	8.00 8.85	8.39 8.53
4/17/77	AM 8.28	7.77	7.63	7.50	7.37	7.43	7.39	7.55	7.62	7.85	8.11	8.29
	PM 8.62	8.70	8.85	8.91	8.91	8.99	9.05	9.03	9.01	8.90	8.80	8.49
4/18/77	AM 8.19	7.75	7.53	7.41	7.32	7.32	7.32	7.50	7.51 8.89	7.75 8.82	7.91 8.73	8.20 8.50
4/19/77	PM 8.45 AM 8.29	8.67 7.78	8.82 7.60	8.94 7.35	9.03 7.20	9.03 7.24	8.94 7.22	8.94 7.35	7.30	7.43	7.60	8.01
.,	PM 8.19	8.39	8.52	8.64	8.64	8.73	8.77	8.71	8.68	8.68	8.46	8.24
4/20/77	AM 7.81	7.60	7.29	7.21	7.21	7.29	7.14	7.31	7.48	7.60	7.85	8.15
4/21/77	PM 8.23 AM 8.00	8.37 7.63	8.52 7.35	8.50 7.33	8.64 7.00	8.59 7.06	8.57 7.07	8.57 7.15	8.52 7.33	8.49 1.37	8.37	8.30
4/21///	AL (7.00	7.03								,		
				D OXYGEN.	IN MILLIGRA							
DATE	1	2	3	4	5	6	7	8	9	10	11	12 12.64
3/07/ <i>17</i> 3/08/77	PM AM 12.58	12.66	12.66	13.00 12.54	13.20 12.50	13.10 12.74	13.08	12.77	12.62	12.56	12.54	14.04
4/14/7/ 4/15/77	PM	4.44	12.94	12.97	12.55	11.98 10.10	11.34 10.60	10.90 11.35	10.35 11.80	9.80 12.57	9.60 13.08	9.36 13.46
4/13///	AM 9.38 PM 11.50	13.57	9.55 13.46	9.62 13.34	9.79 12.87	12.36	11.59	11.25	10.65	10.13	9.83	9.51
4/16/77	AM 9.48	9.56	9.66	9.81	9.95	10.10	10.83	11.33	11.83	12.45	13.25	13.64
6/11//11	PM 13.75	13.97	13.90	13.78	13.17	12.50	11.65	11.14	10.70	10.34	9.78 12.86	9.74 13.25
4/17/77	AM 9.64 PM 13.59	9.52 13.51	9.66 13.3°	9.72 13.04	9.72 12.66	10.24 12.00	10.67 11.50	11.35 10.90	11.76 10.44	12.50 9.91	9.58	9.32
4/18/77	AM 9.09	9.09	9.39	9.36	9.51	10.00	10 56	11.10	11.69	12.10	12.79	13.10
	PM 13.30	13.18	13.21	13.05	12.92	12.10	11.67	11.09	10.79	10.40	9.85 11.89	9.56
4/19/77	AM 9.41 PM 12.89	9,20 12.83	9.35	9.31 12.74	9.39 12.02	9·50 11·50	10.03 10.85	10.40 10.28	11.00 9.61	11.41 9.22	8.91	12.36 8.59
4/20/77	AM 8.51	8. 11	8.10	8.33	8.41	8.94	9.49	10.08	10.68	11.25	11.90	12.20
	PM 12-49	12.41	12.26	12.21	11.75	11.20	10.35	9.98	9.56	9.20	8.84	8.50
4,21/77	AM 8.31	R. 10	8.15	8.20	8.34	8.66	9.11	9.46	10.15	10.73		

Table 24.--Water-quality data collected from September 1973 to September 1978 01516350 - TIOGA RIVER NEAR MANSFIELD, PA.

WATER QUALITY DATA, WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975

				SE	·E-							DXYG	TEN.				
					FIC								15-				
			STRE		N-								VED				
															DITY		
			FLC		ICT-	_				OXY		(PE			TAL	ACIO	
			INST		(CE	٩	H	TEMP			15-		NT	HEA.			3/L
	_	TIME	TANE		CRO-			ATU			.VED		UR-		G/L		15
DATE	Ξ		(CF	'S) MI	105)	(UNI	TS)	(DEG	C)	(MC	3/L)	ATI	ONE	AS	H)	CAC	:03
MAY																	
14.	••	0830		267	163		5.6	3	0.5	1	0.4		93		.4	1	4
JUN 10.4		1145		269	211		4.4		4.0		9.7		93		, 4		• •
JÚĽ	•	,		207			-1-	•	0		,		Ψ.,		,-	,	•
09.	• •	0700		55	356		3.7	2	1.0		7.8		87		. 9	4	7
AUG		0915		20	400			•									
SEP.	• •	0713		28	608		3.0	~	1.0		8.4		93		1.8		3
11.	••	0830		37	427		3.6	1	3.0	ı	0.0		94		1.2	5	6
						CAR	RON			CHE	.0-	NIT	RO-	NI	TRO-	NI1	RO-
		BICAR-		AL	KA-	DIOX	10E	SULF	ATE	RIC	È.	GE	N.		EN.	GE	N.
		BONATE	CAR		YTZ		5-	DIS		D15		NITE			RITE	N024	
		(MG/L	BONA		IG/L		VED	SOL			.VED	101			TAL	101	
		AS	(MG		NS.	(MG		IMG		(M)		(MG			G/L		3/L
DATE	5	HC03)	AS C		(CO3)	AS C		AS S			CL)	AS			N)	AS	
MAY			_	_				_	_								
I4., JUN	• •		2	0	3		8.0	5	0		3.0		.27		.01		-51
10.			1	0	1	6	4	4	3		3.0		.59				
JUL 09.			_	_					_								
AUG	••		0	0	Ó		. 0	14	U		6.0		.20				
06.	• •	1	0	0	0		.0	25	0		8.0		.35		.01		. 36
SEP 11			0	0	0		.0	19			A.5		.38				
••••		,	•	•	•		••	.,	•		,		• 30				
						TRO-										-10	
			VITRO-	NITRO-		AH-						05-			ME		
			GEN,	GEN.		IIA +		TRO-		05-		RUS.		01-	DI		
			4MON I A	ORGANIC		ANIC		EN.	PHOP			THO.		NT,		RGE .	
			TOTAL	TOTAL		TAL		TAL		TAL.		TAL	SU		50		
	_		(MG/L	(MG/L		IG/L		G/L		3/L		G/L		NDEO		NOEO	
	Dį	TE .	AS N)	AS N)	AS	N)	AS	N)	AS	P)	AS	P)	(M	G/L)	(1/	DAY)	
	PAY	,															
			.03	-10	•	-13		.41		.06		.00		24		17	
	JU	·	.01	.16		-17		.76		.01		.01		5		7 4	
	JÜL		. • • •	• 1 0	•	• • •				.01		.01		,		3.6	
			.04	-07	,	-11		.31		. 0 l		.00		Ea			
	AUG	3 5	.07	.01	,	.14		.50		.06		.01		ΕO			
	SEF			.01		• • •		# D W		•06		. 0 1		£ 0			
	11		.05	.06	•	•11		.49		.01		.00		Εo			

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01516350 - TIOGA RIVER MEAN MANSHIFLD. PR.

WATER QUALITY DATA. WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975

nate	TIME	ALUM- INUM. TOTAL RECOV- ERARLE (UG/L AS AL)	ALUM- INUM. DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	APSENIC DISH SOLVED (UG/L AS AS)	CADMIUM TOTAL RECOV- EPARLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHPO- MINM. TOTAL RECOV- FRABLE (UG/L AS CR)	CHRO- MIUM. DIS- SOLVED (UG/L AS CP)
МДҮ 14*** ЭЦИ	0690		910		1		n		10
10	1145		2900		0		0		<10
JUL 09	0790	4200	4500	n	2	n	1	0	9
411G 06 SEP	0915		9500	~-					
11	0430	6800	8900		~-				
OATE	COMALT. TOTAL RECOV- ENAMLE (UG/L AS CO)	CORALT. DIS- SOLVEO (UG/L AS CO)	COPPER. TOTAL MECOV- ERARLE (UG/L AS CU)	COPPER. DIS+ SOLVED (UG/L AS CU)	TROM. TOTAL RECOV- EPARLE (UG/L AS FE)	IRON. OIS~ SOLVES (HG/I AS FF)	LEAD+ TOTAL RECOV= ERBRLE (UG/L AS PR)	LFAD+ DTS- SOLVED (HG/L AS PR)	MANGA- NESE+ TOTAL RECOV- ERABLE (UG/L AS MN)
MAY									
14 Jijn		19		10		250		ō	
JUL		77		50		1200		1	
AUG	52	64	20	30	-30	470	6	5	4500
06 SEP						470			
11					450	A 00			5800
	MANGA+ MESF+ DIS- SOLVED (UG/L	MERCUPY TOTAL RECOV~ EPABLE (UG/L	MERCURY DIS- SOLVED (UG/L	SELE- NIUM+ FOTAL (UG/L	OLVED SOLVED SELF-	SILVER. TOTAL HECOV- ERARLE IUG/L	STLVFP. DTS- SOLVED TUG/L	7TNC. TOTAL RFCOV- FRABLE (UG/L	71NC+ D15+ SOLVEN (UG/L
DATE	AS MN)	AS HG1	AS HG)	AS SEI	AS SEI	AS AG)	45 461	AS ZN)	AS ZNI
MAY 74 JIIN	1500		<.5		1		n		200
10 Jul	23,00		<.5		ŋ		c		31 n
n4	4500	<.5	<.5	1	0	n	0	630	600
4(IG 06 SFP	7300						••		95n
11	5901							1100	1100

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01516355 TIOGA RIVER MEAR MANSFIELD. PA.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIM	STREA FLOW INSTA E TAMEO (CFS	N- DUCT	ic i- E P 10-		EMPER- ATURE DEG C)	OXYGEN. DIS- SOLVED (MG/L)	OXYGEN: DIS- SOLVED (PER- CENT SATUR- ATION)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L AS CACD3)
OCT	. 060	. 1	56 3	38	4.0	9.5	10.4	91	.8	46
11	. 874	, s	42	162	5.1	8.0	11.0	92	.2	12
DEC 10	. 083	6	99 1	118	5.6	1.5	13.0	93	.2	9.0
JAN 07	080) 1	12 8	274	3.6	.0	13.4	92	.7	39
FEB 04 Mar	144	5 2	69 2	231	4.5	.0	13.2	90	.6	30
OB	143	D 4	17 8	502	4.2	4.5	11.8	91	.4	24
05	143	3	196 1	178	4.4	9.0	10.6	91	•	18
DATE	BICAR- BONATI LMG/I AS HCO3	E CAR- L BONAT (M6/	E IMB	L 20F	IDE S S- VED /L	ULFATE DIS- SOLVED (MG/L S SO4)	CHLO- RIDE. DIS- SOLVED (MG/L AS CL)	NITRO- GEN+ HITRATE TOTAL (MG/L AS N)	HITRO- BEN: HITRITE TOTAL (MG/L AS H)	HITRO- BEN+ NOZ-NO3 TOTAL (MB/L AS N)
07	,	•	0	•	.0	130	4.0	.47		
11	•	2	0	s s	5	60	4.0	.32		••
10		13	0	4 5	2	38	4.2	. 36	.01	.37
07 FEB	•	•	0	•	•0	110	4.0			
MAR	•	0	0	0	.0	100	4.5		**	
OB		•	•	0	.0	79	3.0	.72		•-
05	•	•	0	0	.0	68	4.2			
	DATE	NITRO- GEN. AMMONIA TOTAL (MG/L AS N)	NITRO- GEN: GRGANIC TOTAL (MG/L AS N)	MITRO- GEN+AM- HONIA + ORGANIC TOTAL (MG/L AS M)	NITR GEN TOTA (MG/ AS N	PHOIL TO	DS- PHO RUS, OR Tal to B/L (M	THO. ME TAL SU B/L PE	ME DI- DI NT, CHA S- SU NDED PE	S- RBE•
	67	.07	.08	.15	•	62	.04	.02	51	21
	11	.01	.27	.28	•	60	.07	.05	203	133
-)EC 10	.04	•43	-47	•	84	•55	.01	389	734
	07 EB								EO	
	04								56	41
	08	-95	•11	-16	•	88	-01	.01	55	25
	05			••					15	12
NATE	f t at	ALIJM- INUM. TOTAL RECOV FRARL (UG/L AS AL	ALIM- 1NUM- - 015- E 50LVF (UG/L	TOTAL PECO O ERARI (1)0/1	L 1 V- 5 LF 5	BDM. nts- olven ng/L s fe)	MANGA- NESE+ TOTAL RECOV- ERABLE (LIG/L AS MN)	MANGA- NESE. DIS- SOLVED LUG/L AS MN1	PINC+ TOTAL PECOV- FRANLE (IGS/L AS PN)	ZINC. DIS- SOLVED (UG/L AS ZN)
nc†	0000	650	o 500	10 34	90	670	5000	5000	520	520
11	0740	370				110	1400	1000	250	239
nec 19	0430	600	n 4	, 150	00	*0	961	450	150	90

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01516350 ~ 710GA RIVER NEAR MANSFIELD, PA.

WATER QUALITY DATA. WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	71	ME	STREAM FLOW INSTAM TANEOM (CFS	DUC N~ AND US (MIC	1C 1- 1E •	PH (UNITS	TEMP ATL	IRE	OXYGE DIS SOLV (MG/	50 N, (P - C ED SA	GEN. IS- LVED ER- ENT (TUR- ION)	COLI FORM FECA Q.7 UM-M (COLS	i, IL, IF i,/	MARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	HEATED (MG/L
FEB 09	17	0 0	10	67	274	4.	2	.0	13	.8	95		0	86	86	.7
DATE	ACTO (MG. A! CAC	/L 5	CALCII DIS- SOLVI (MG/C AS C	UM SI DI ED SOL L (MG	S-	SODIUM DIS- SOLVED (MG/L AS NA	5001		SODI AD SORP TIO PATI	- S - D N SO	TAS- IUM. IS- DLVED IG/L K)	BICAR BONAT (MG/ AS	re rl 8 S	CAR~ IONATE (MG/L IS CO3)	ALKA- LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)
FER 09	3	•	18	1	10	3.	3	6		•5	1.2		0	0	•	.0
ſ	DATE	D I 50 (M	FATE S- LVED G/L 5041	CHLO- RIDE. DIS- SOLVED (MG/L AS CL)	NIT GE NITR DI SOL (MG	N. ATE N S- VED /L	NITRO- GEN, ITRITE DIS- SOLVED (MG/L AS N)	NO2	S- VED	NITRO- GEN: AMMONIA DIS- SOLVED (MG/L AS N)	9 0 086 0 50 4)	TRO- IEN. IANIC IS- DLVED IG/L N)	NITA GEN•A MONIA ORGAN DIS• (MG/ AS N	M- PI I PHO IIC D' I SO	IS- DLVED !	SEDI- MENT. JUS- PENDED MG/LI
FE	E8 09	1	00	4.7		•65	.00		.65	.08	ı	.21		29	.00	E15

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01516820 - T108A RIVER AT LAMBS CREEK, PA.

WATER QUALITY DATA, WATER YEAR OCTOBER 1972 TO SEPTEMBER 1973

			WATER O	JALITY DA	TA, WATER	YEAR OCT	08ER 1972	TO SEPTE	MBER 1973			
		STREAM- FLOW, INSTAN-	SPE- CIFIC CON- DUCT- ANCE	PH	TEMPER-	OXYGEN, DIS-	OXYGEN, DIS- SOLVED (PER-	ACIDITY	BICAR- BONATE	CAR-	ALKA- Linity	CARBON DIOXIDE DIS-
DATE	TIME	TANEOUS (CFS)	(MICRO- MHOS)	(UNITS)	ATURE (DEG C)	SOLVED (MG/L)	CENT SATUR- ATION)	(MG/L AS CACO3)	(MG/L AS HCO3)	BONATE (MB/L AS CO3)	(MO/L AS CACO3)	SOL VED
SEP 06	1100	216	265	4.5	22.0						CACUSI	AS C021
			203	443	22,0	11.5	130	29	0	0	0	.0
DA	(MG TE AS S	VED SOL	DE. GE S- NITR VED TOT	N. GE ATE AMMO AL TOT /L (MG	No GE NIA ORGA AL TOT	TRO- GEN- IN- MON! INIC ORGA IAL TO!	ANIC GI TAL TO' B/L (M	TRO- PMC EN, PMOF TAL TOT B/L (MC N) AS	RUS+ ORT	RUS: SED THO, MEN TAL SUS B/L PEN	T. CHAR	T GE, DED
SEP 06	10	6	7.5 1	.6	-41	.56	.97 ;	2.6	.29			
			_		• • •	•30	•••	•••	• 6 7	•11	336	196
			SPE- CIFIC	ALITY DAT	A, WATER	YEAR OCT	OXYGEN, DIS-	TO SEPTER	4AEP 1974			
DATE	TIME	STRFAM- FLOW+ INSTAN- TANFOUS (CFS)	CON- OUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN. DIS- SOLVED (MG/L)	SOLVED (PER- CENT SATUR- ATION)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L AS CACO3)	BICAR- RONATE (MG/L AS HCO3)	CAR- MONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACO3)
OCT		100 31	#RU3)	(04113)	(000 ()	\~G/L/	A11047	-3	C#C037	ACO37	A , CO37	CHEUST
09	1430	73	349	4.1	15.5	9.8	97	34	55	0	0	0
DB	0910	149	223	4.6	3.0	12.4	97	.5	24	0	0	0
13 JAN	1145	392	808	4.B	1.5	13.1	94	.4	26	0	0	0
10	1015		250	4.6	.0	14.0	96	.5	55	0	0	0
13	1315		207	4.6	.5			.4	24	1	0	0
13 APH	1315	- - -	173	4.2	1.0	13.4	94	.4	77	0	0	0
02	1130	1250	141	5.9	3.0	12.8	95	• 3	24	19	0	
01 JUN	1215	285	172	5.1	14.0	9.9	96	.5	33	1	0	•-
12	1230	96	253	4.6	18.5	9.4	100	. 5	50	1	0	0
17 AUG	1630	40	416	3.4	26.0	7.6	93	1.0	160	0	0	0
14 SEP	1245	29	570	3.5	26.0	7.4	90	1.6	78	0	0	0
12	1230	29	587	3.6	22.0	8.8	100	5.0	89	0	0	0
DATE	CARBON DIOXIOF DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE+ DIS- SOLVED (MG/L AS CL)	NITRO- GEN: NITRATE TOTAL (MG/L AS N)	NITRO- GEN: AMMONIA TOTAL (MG/L AS N)	NITRO- GFN+ ORGANIC TOTAL (MG/L AS N)	NITRO- GEN.AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN+ TOTAL (MG/L AS NI	PHOS- PHORUS. Total (MG/L AS P)	PHOS- PHORUS. ORTHO. TOTAL (MG/L AS P)	SEDI- MENT. SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE. SUS- PENDED (T/DAY)
0CT 09	.0	134	8.5	.23	.05	.31	•36	.59	.04	.04	4	.79
NOV 08	•0	98	4.0	.29	•07	•17	.24	.53	.03	.02	16	6.4
DEC	•0	76	2.5	.59	-14	.27	.41	1.0	.10	.10	47	50
JAN 10	.0	71	7.3	.80	•13	-15	.28	1.1	.03	.01	14	
FEB 13	40	A2	6.5	.70	•13	.31	.44	1.2	.04	.01	42	
MAR 13	.0	61	4.5	.72	•14	.17	• 31	1.0	-11	.10	53	
APH 02	38	15	5.0	1.0	.05	.51	.54	1.6	.20	.09	153	516
MAY 01	13	56	5.6	.40	•12	.20	.32	.72	. 114	.02	80	15
JUN 12	40	106	5.5	.57	•17	.23	.40	.97	.03	.01	14	3.6
JUL 17	. n	143	10	.23	-10	-14	,24	.47	.02	.00	1	.11
AUG 14	.1	256	9.0	. 34	.14	.23	.41	.75	.04	.01	2	.16
660	- '						· •					

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01516820 - TIOGA RIVER AT LAMRS CPFEK. PA.

WATER QUALITY DATA	WATER	YEAR	OCTOPER	1973	TO	SEPTEMBER	1974
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DATE	TIME	ALUM- INUM+ TOTAL RECUY- ERABLE (UG/L AS AL)	APSENIC TOTAL TUG/L AS ASI	CADMIUM TOTAL RECOV- ERABLE (UG/L AS COI	CHRO- MIUM. TOTAL RECOV- ERAGLE (UG/L AS CR)	COBALT. TOTAL RECOV- ERABLE (UG/L AS CO)	COPPER, TOTAL HECOV- ERABLE IUG/L AS CUI	IRON+ TOTAL RECOV- ERABLE (UG/L AS FE)
FER								
13	1315							
13	1315							
02	1130							
91 01	1215	9300	1	1	0	28	30	2100
12	1230	20	3	0	10	45	50	1000
17	1630	3500	<1	1	0	74	40	1400
14	1245	15000	n	1	<10	110	40	500
12	1230	5500	1	۶	10	140	50	1100
	190		ID. NES	TAL TO		SIL\ LF- TO: UM, RE(TAL TOT	

			MANGA-				
		LEAD.	NESF.	MFRCURY		SILVER	ZINC+
	IRON.	TOTAL	TOTAL	TOTAL	SFLF-	TOTAL	TOTAL
	D15-	RECOV-	RECOV-	RECOV-	NIUM.	RECOV-	RFCOV-
	SOLVED	ERABLE	ERAPLE	ERAHLE	TOTAL	FRAMLE	ERARLE
	(UG/L	(UG/L	(UG/L	(UG/L	(UG/L	(UG/L	(1)6/L
DATE		AS PA	AS MN)	AS MG)	AS SE	AS AG)	AS ZN)
DATE	AS FEI	M> MM1	#2 ~(4)	43 107	H3 1(/	-3 -W	45 2
FEB							
13	150						
MAR							
13	1200						
APR							
02	70						
MAY							
01			1400	₹.5	0	0	550
JUN							
12		3	2700	4.5	1	1	360
JUL					•		
		3	4500	<.5)	0	640
17		,	4 744	1.00	•		
AUG			8400	<.5	<2	0	1300
14		6	8400	2.0	ν.	•	1.700
SEP .		_			3	1	1300
17		7	800R	٠.5	•		1 300

WATER QUALITY DATA. WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975

DATE	TIME	STREAM- FLOW+ INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH {UNITS}	TEMPER- ATURE (DEG C)	OXYGEN. DIS- SOLVED (MG/L)	OXYGEN+ DIS- SOLVED (PER- CENT SATUR- ATION)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L 45 CACO3)
0CT	1350	33	457	3.8	12.0	10.4	96	1.1	56
NOV 07	0830	136	197	6.5	6.0	11.6	99	.0	12
DEC									
89	1510	1500	109	5.9	2.5	12.8	94	.1	16
JAN 14	1245	492	199	3.6	.0	13.2	90	.4	27
FEB 03	1230	180	274	3.9	.5	12.6	88	.6	50
MAR 05	1215	228	256	4.3	1.0	12.0	90	.6	55
APR 01	1200	231	185	4.2	6.0	12.0	96	.3	47
MAY 14	1115	376	161	6.6	13.5	9,8	93	.5	7.0
JUN 10	1300	291	195	5.1	16.0	9.0	90	-1	12
JUL	0845	65	293	4.3	22.0	6.8	93	.6	47
AU6	1030	32	512	3.3	21.0	8.2	91	1.4	68
5EP	0930	40	380	4.6	15.0	9.7	95	.0	30

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01516820 - TIOGA RIVER AT LAMBS CREEK, PA.

MATER QUALITY DATA. WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975

DATE	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACO3)	CARBON DIOXIDE OIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE. DIS- SOLVED (MG/L AS CL)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- BEN+ NITRITE TOTAL (MG/L AS N)	NITRO- GEN+ NO2+NO3 TOTAL (MG/L AS N)
OCT									
10	•	•	0	.0	188	9.0	.29		
NOV 07	12	•	10	6.1	81	6.5	.32		
0FC		0	11	16	25	2.0	.68		
JAN 14	1	0	0	402	84	5.0	.54		
PEB 03	•	0	0	.0	99	5.5	.68		
MAR 05	0	0	•	.0	120	5.0	.86		
APR 01	0	0	0	.0	72	5.0	.72		
MAY 14	6	0	6	2.4	53	4.0	.29	.01	.30
JUN 10	2	0	5	25	73	3.0	.63		
JUL 09	0	0	•	.0	130	7.0	.18		
96	0	0	0	.0	230	10	.31	.01	•32
SEP 11	•	0	1	.0	170	16	.25		

DATE	HITRU- GEN: AMMONIA TOTAL (MG/L AS N)	MITRO- GEN+ ORGANIC TOTAL (MG/L AS N)	MITRO- GEN-AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN+ TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS. ORTHO. TOTAL (MG/L AS P)	SEDI- MENT. SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE. SUS- PENDED (T/DAY)
ОСТ	.19	.10	.29	.58	.08	.07	ΕO	
10	.17	•••	*67	136	.00	•••		
07	.06	.21	-27	.59	.07	.02	55	8.1
DEC 99 Jan	.07	.35	.42	1.1	.07	.05	88	356
14	.07	.16	.23	.77	•11	.09	29	39
7EB	.13	.19	•35	1.0	.03	.02	•	4.4
MAR 05 Apr	.05	.23	.28	1.1	.05	.03	32	50
01	.04	.08	.12	.84	.03	.02	13	8.1
14	.03	.13	.16	.46	.03	.00	26	26
JUN 10	.03	.13	-16	.79	.03	.03	11	8.6
99	.06	-10	.16	.34	.01	.00	EO	
AUG	-16	.05	.21	.53	.13	.01	EO	
SEP 11	-12	.09	.21	.45	.04	.03	ΕO	

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01516820 - TIOGA RIVER AT LAMBS CREEK, PA.

WATER QUALITY DATA, WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975

		4011							
NATE	TIME	ALUM- INUM- TOTAL RECOV- ERABLE (UG/L AS AL)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	APSENTC DIS+ SOLVED (UG/L AS AS)	CADMIUM TOTAL RECOV- ERARLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CO)	CHPO- MIIIM: TOTAL RECOV- FRARLE (UG/L AS CR)	CHRO- MIUM+ DIS- SOLVED (UG/L AS CR)
0CT 10	1350	5300		<)		1		0	
07 DEC	0830	3100		n		0		0	
19 JAN	1510	1600		3		1		<10	
14 FFB	1245	2700		ı		1		0	
03 MAR	1230	210		5		1		0	
15	1215	~-	3000		1		1		n
Ol	1200		1800		n		0		0
14 JUN	1115	~-	50		0		٥		<] n
10 JUL	1300		450		1		0		«1n
ng Aug	0845		3800		O				
O6	1030		8500 4500						
11	0930		6500				_	-	
DATE	COBALT. TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT. DIS- SOLVED (UG/L AS CO)	COPPER. TOTAL RECOV- ERABLE (UG/L AS CII)	COPPER+ DTS+ SOLVED (UG/L AS (U)	TRON. TOTAL RECOV- FRARLE (UG/L AS FE)	IRON. DIS- SOLVEO (UG/L AS FF)	LEAR+ TOTAL RECOV- FRABLE (UG/L AS PR)	LEAD+ DIS+ SOLVED (UG/L AS PB)	MANGA- NESE. TOTAL RECOV- ERABLE (UG/L AS MN)
0CT 10	TOTAL RECOV- ERABLE (UG/L	DIS- SOLVED (UG/L	TOTAL RECOV- ERABLE (UG/L	DTS- SOLVED (UG/L	TOTAL RECOV- FRARLE (UG/L	D15- SOL VED (UG/L	TOTAL RECOV- Frable (UG/L	DIS- SOLVED (UG/L	NESE. TOTAL RECOV- ERABLE (UG/L
OCT 10 NOV 07	TOTAL RECOV- ERABLE (UG/L AS CO)	DIS- SOLVED (UG/L AS CO)	TOTAL RECOV- ERABLE (UG/L AS CU)	DTS- SOLVED (UG/L AS CU)	TOTAL RECOV- FRARLE (UG/L AS FE)	DIS+ SOLVED (UG/L AS FF)	TOTAL RECOV- FRABLE (UG/L AS PR)	OTS- SOLVEN (UG/L AS PB)	NESE+ TOTAL RECOV- ERABLE (UG/L AS MN)
0CT 10 NOV 07 DFC	TOTAL RECOV- ERABLE (UG/L AS CO)	DIS- SOLVED (UG/L AS CO)	TOTAL RECOV- ERABLE (UG/L AS CU)	DTS- SOLVED (UG/L AS CU)	TOTAL RECOV- FRARLE (UG/L AS FE)	DIS- SOLVED (UG/L AS FF)	TOTAL RECOV- FRABLE (UG/L AS PR)	DIST SOLVED (UGZL AS PB)	NESE TOTAL RECOVERABLE (UG/L AS MN) 6100 1800
OCT 10 NOV 07 DFC 09 JAN	TOTAL RECOV- ERABLE (UG/L AS CO)	DIS- SOLVED (UG/L AS CO)	TOTAL RECOV- ERABLE (UG/L AS CU) 30	DTS- SOLVED (UG/L AS CU)	TOTAL RECOV- FRARLE (UG/L AS FE) 1500	DIS- SOLVED (UG/L AS FF)	TOTAL PECOV- FRABLE (UG/L AS PR) 2	OTS- SOLVED (UGAL AS PB)	NESE- TOTAL RECOV- ERABLE (UG/L AS MN) 6100 1800 610
OCT 10 NOV 07 OFC 09 JAN 14 FFB	TOTAL RECOV- ERABLE (UG/L AS CO)	DIS- SOLVEN (UG/L AS CO)	TOTAL RECOV- ERABLE (UG/L AS CU) 30 10	OTS- SOLVED (UG/L AS CU)	TOTAL RECOV- FRARLE (UG/L AS FE) 1500 1600	DIS- SOLVEN (UG/L AS FF)	TOTAL RECOV- FRABLE (UG/L AS PR)	OTS- SOLVED (UG/L AS PB)	NESE- TOTAL TOTAL TECOV- ERABLE (UG/L AS MN) 6100 1800 610 2000
OCT 10 NOV 07 DFC 09 JAN 14 FFB n3 MAR	TOTAL RECOV- ERABLE (UG/L AS CO) 100 20 10	DIS- SOLVED (UG/L AS CO)	TOTAL RECOVERABLE (UG/L AS CU)	OTS- SOLVED (UG/L AS CU)	TOTAL RECOV- FRANLF (UGAL AS FE) 1500 1600 3400	DIS- SOLVEN (UG/L AS FF)	TOTAL RECOV- FRABLE (UG/L AS PR) 2 3 4 4	OIS- SOI VEN (UG/L AS PB)	NESE - TOTAL RECOV-ERABLE (UG/L AS MN) 6100 610 7000 7100
OCT 10 NOV 07 DFC 09 JAN 14 FFR 03 MAR 05	TOTAL RECOV- FRARLE (UG/L AS CO) 100 20 110 40 56	DIS- SOLVED (UG/L AS CO)	TOTAL RECOV- REABLE (UG/L AS CU) 10 20 20	OTS- SOLVED (UG/L AS CU)	TOTAL RECOV- FRARLF (UG/L AS FE) 1500 1600 3400 2800	DIS- SOLVED (UG/L AS FF)	TOTAL RECOV- FRABLE (UG/L AS PR) 2 3 4 4 5	OIS- SOIVEN (UG/L AS PB)	NESE- TOTAL RECOV- ERABLE (UG/L AS MN) 6100 1800 610 2000
OCT 10 NOV 07 DFC 09 JAN 14 FFB 03 MAR 05 APR 01	TOTAL RECOVERABLE (UG/L AS CO)	015- SOLVED (UG/L AS CO) 50	TOTAL RECOV- ERABLE (UG/L AS CII) 30 10 20 20	DTS- 502 VED (UG/L AS CU) 20 10	10TAL RECOV- FRARLF (UG/L AS FE) 1500 1600 3400 2000 3000	1600 590 190	TOTAL RECOV- FRABLE (UG/L AS PR) 2 3 4 4 5	OIS- SOIVEN (UG/L AS PB)	NESE- TOTAL RECOV- ERABLE (UG/L AS MN) 6100 1800 610 2000 3100
OCT 10 NOV 07 DFC 09 JAN 14 FFR 03 MAR 05	100 20 10 56	015- SOL VED (UG/L AS CO) 50 29 16	TOTAL RECOV- ERABLE (UG/L AS CII) 10 20 20	575- 575 VED (UG/L AS CU)	10TAL RECOV- FRARLF (UG/L AS FE) 1500 1600 3400 2800 3000	1600 590 180 180 180 180	TOTAL RECOV-FRABLE (UG/L AS PR)	OIS- SOIVEN (UG/L AS PB)	NESE- TOTAL RECOV- ERABLE (UG/L AS MN) 6100 1800 610 2000
OCT 10 NOV 07 OFC 09 JAN 14 FFR 03 MAR 01 MAP 01	100 20 10 40 56	015- SOLVED (UG/L AS CO) 50 29 16 28	TOTAL RECOV- RAPULE (UG/L AS CII) 30 10 20	20 10 10 20	10TAL RECOV- FRARLF (UG/L AS FE) 1500 1600 3400 2800 3000	DIS- SOLVEN (UG/L AS FF)	TOTAL RECOV- FRABLE (UG/L AS PR) 2 3 4 4 5	OIS- SOIVEN (UG/L AS PB)	NESE- TOTAL RECOV- ERABLE (UG/L AS MN) 6100 1800 610 2000 3100
OCT 10 NOV 07 OFC 09 JAN 14 FFR 13 MAR 105 APR 11 VAY 14 JIN 10	100 20 100 20 100 56	015- SOL VED (UG/L AS CO) 50 29 16	TOTAL RECOV- RAPULE (UG/L AS CII) 30 10 20	575- 575 VED (UG/L AS CU)	10TAL RECOV- FRARLF (UG/L AS FE) 1500 1600 3400 2800 3000	1600 590 180 180 180 180	TOTAL RECOV- FRABLE (UG/L AS PR) 2 3 4 4 5	OIS- SOIVEN (UG/L AS PB)	NESE- TOTAL RECOV- ERABLE (UG/L AS MN) 6100 1800 610 2000 3100

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued U1516820 - TIOGA RIVER AT LAMBS CREEK, PA.

WATER QUALITY DATA, WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975

DATE	MANGA- NESE + DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERAHLE (UG/L AS HG)	MERCURY DIS~ SOLVED (UG/L AS HG)	SFLF- NIUM. TOTAL (UG/L AS SE)	SELF- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER. TOTAL RECOV- EPABLE (UG/L AS AG)	SILVER. DIS- SOLVED (UG/L AS AG)	ZINC+ TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC. DIS- SOLVEN (UG/L AS ZN)
oct									
10		.8		</td <td></td> <td>0</td> <td></td> <td>990</td> <td></td>		0		990	
B7		٠.5		0		0	-•	330	•-
09		۷,5		0		0		90	
14 FFH		٠.5		ı		0		240	
03 MAR		<,5		0		0		420	
05	2300		<.5		1		0		390
01 MAY	1700		<.5		1		0		250
14 JUN	1200		<.5	~-	0		0		150
10 Jill	5000		<.5		1		0		250
79	3700		<.5		1		0		730
06 SEP	6700								820
11	5100								1700

MATER QUALITY DATA. MATER YEAR OCTORER 1975 TO SEPTEMBER 1976

n#TF	1411	STRFAM- FLOW. INSTAM- TANFOUS (CFS)	SPF- CIFIC CON- DUCT- ANCE (MTCHO- MHOS)	PH (UNITS)	TEMPEH- ATURE (DEG C)	UXYGEN. DIS- SOLVED SOLVED (MG/L)	OXYGEN+ DIS- SOLVED (PFR- CENT SATUR- ATION)	ACIDITY TOTAL HEATED (MC/L AS H)	ACIDITY (MG/L AS CACO3)
ect e7	0920	167	298		10.5		FO	_	
MOV	0470	1417	744	4.4	10.5	10.4	41	•5	35
11 be C	りららり	261	154	6.3	9.0	11.0	92	.1	9.1
10	0:04.0	755	123	6.1	2.0	13.2	9	.1	7.0
	0900	132	245	4.5	• 0	13.4	45	.5	33
74	1545	301	220	5.1	.5	13.4	93	.4	25
N4	1530	450	172	5.1	4.5	12.0	93	.3	15
05 MAY	1530	350	166	4.4	9.0	10.4	91	.2	11
05 JHN	1630	147	215	4.9	15.0	9.6	96	.3	17
61	1445	200	197	5.2	16.0	9.6	96	.1	10
12	1525	106	280	4.5	20.0	4.2	100	•6	28
10	1355	117	183	5.1	1 = 0	9.n	Q¢,	٠,	11
07	1400	76	567	7.7	14.5	4.7	103	1.4	67

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued

01516820 - TIOGA RIVER AT LAMBS CREEK, PA.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

NATE	BICAR- HUNATE (MG/L AS HCN3)	CAR- HONATF (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACO3)	CARRON DIOXIDE DIS- SOLVED (MG/L AS COS)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE: DIS- SOLVED (MG/L AS CL)	NITPO~ GEN+ NIT-ATE TOTAL (MG/L AS N)	NITHO- GEN+ NITHITE TOTAL (MG/L AS N)	NITHO- GEN: NO?+NO3 TOTAL (MG/L AS N)
OCT									
07 NOV	n	0	0	.0	130	h.0	.66		
11	7	0	5	5.4	57	5.0	.34		
10	20	0	g	25	35	5.0	.37	.03	.40
JAN 07 Feh	0	ņ	0	•0	260	5.0			
04	n	n	1	.0	92	6.0			
₩4₽ 08	0	0	1	• 1	69	4.5	.70		
APR 05	5	0	0	51	57	5.7			
M&Y በዓ	n	0	1	• 0	41	3.H			
JHN 01	4	n	2	40	75	5.1	.42	.01	.43
12	0	0	0	.0	140	5.0			
10	3	a	2	24	7)	3.2			
SFP 07	n	n	9	•0	240	6.8	.35	.01	. 36
	NITRO- GEN, AMMONIA TOTAL	NITRO- GEN. ORGANIC TOTAL	NITRO- GEN+AM- MUNIA + ORGANIC TOTAL	NITPO- GEN+ TOTAL	PHOS- PHORUS. TOTAL	PHOS- PHORUS. ORTHO. TOTAL	ALGAL GROWTH POTEN- TIAL + ROTTLE	SENI- MENT+ SUS-	SEDI- MENT DIS- CHARGE. SUS-
n4TE	GFN, AMMONIA	GFN+ ORGANIC	GEN+AM- MUNIA + ORGANIC	GEN.	PHORUS.	*21)#0H9 • NHT90	GROWTH POTEN- TIAL+	MENT.	MENT DIS- CHARGE.
ect	GFN; AMMONIA TOTAL (MG/L AS N)	GEN+ ORGANIC TOTAL (MG/L AS N)	GEN+AM- MONIA + OHGANIC TOTAL (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS. ORTHO. TOTAL (MG/L AS P)	GROWTH POTEN- TTAL+ ROTTLE TEST (MG/L)	MENT+ SUS- PENDED (MG/L)	MENT DIS- CHARGE. SUS- PENDED (T/DAY)
0CT 07 NOV	GFN+ AMMONIA TOTAL (MG/L AS N)	GEN+ ORGANIC TOTAL (MG/L AS N)	GEN+AM- MONIA + OHGANIC TOTAL (MG/L AS N)	GEN. TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS. ORTHO. TOTAL (MG/L AS P)	GROWTH POTEN- TTAL+ ROTTLE TEST (MG/L)	MENT+ SUS- PENDED (MG/L)	MENT DIST CHARGE. SUST PENDED (T/DAY)
007 07 NOV 11	GEN; AMMONIA TOTAL (MG/L AS N)	GEN+ ORGANIC TOTAL (MG/L AS N)	GEN+AM- MONIA + OHGANIC TOTAL (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS. ORTHO. TOTAL (MG/L AS P)	GROWTH POTEN- TTAL+ ROTTLE TEST (MG/L)	MENT+ SUS- PENDED (MG/L) 49	MENT DIS- CHARGE. SUS- PENDED (T/DAY)
0CT 07 NOV 11	GFN+ AMMONIA TOTAL (MG/L AS N)	GEN+ ORGANIC TOTAL (MG/L AS N)	GEN+AM- MONIA + OHGANIC TOTAL (MG/L AS N)	GEN. TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS. ORTHO. TOTAL (MG/L AS P)	GROWTH POTEN- TTAL+ ROTTLE TEST (MG/L)	MENT+ SUS- PENDED (MG/L)	MENT DIST CHARGE. SUST PENDED (T/DAY)
0CT 07 NOV 11 0FC 10 Jan	GFN, AMMONIA TOTAL (MG/L AS N) .09	GEN- OPGANIC TOTAL (MG/L AS N) -15	GEN+AM- MONIA + OHGANIC TOTAL (MG/L AS N)	GEN. TOTAL (MG/L AS N) .90	PHORUS, TOTAL (MG/L AS P) .05	PHORUS. ORTHO. TOTAL (MG/L AS P)	GROWTH POTEN- TIAL. ROTTLE TEST (MG/L)	MENT+ SUS- PENDED (MG/L) 49	MENT DIS- CHARGE. SUS- PENDED (T/DAY)
0CT 07 NOV 11 OFC 10 JAN 07 FFB	GFNN AMMONIA TOTAL (MG/L AS N) .09	GFN- ORGANIC TOTAL (MG/L AS N) -15 -26	GEN-AM- MONIA + ORGANIC TOTAL (MG/L AS N) *24 *24	GEN. TOTAL (MG/L AS N) .90 .62	PHORUS, TOTAL (MG/L 4S P) .05 .07	PHORUS. ORTHO. TOTAL (MG/L AS P)	GROWTH POTENI- TIAL * ROTTLE TEST (MG/L)	MENT - SUS - PENDED (MG/L) 49	MENT DIS- CHARGE. SUS- PENDED (T/DAY) 22 94
OCT 07 NOV 11 OFC 10 JAN 67 FFH 04 MAR	GFNv AMMONIA TOTAL (MG/L AS N) .09 .02	GFN+ ORGANIC TOTAL (MG/L AS N) -15 -26 -40	GEN.AM- MONIA OHGANIC TOTAL (MG/L AS N) 24 28	GEN. TOTAL (MG/L AS N) .90 .62	PHORUS, TOTAL (MG/L AS P) .05 .07	PHORUS. ORTHO. TOTAL (MG/L AS P)	GROWTH POTENI- TIAL - ROTTLF TEST (MG/L)	MFNT+ SUS- PFNDED (MG/L) 49 134 300	MENT DIS- CHARGE. SUS- PENDED (T/DAY) 22 94 612
OCT 07 NOV 11 OFC 10 JAN 67 FFH 04 MAR 08 APR	GFN+ AMMONIA TOTAL (MG/L AS N) .09 .02 .05	GFN- ORGANIC TOTAL (MG/L AS N) -15 -26 -40	GEN-AM- MONIA - OHGANIC TOTAL IMG/L AS N)	GEN. TOTAL (MG/L AS N) .90 .62	PHORUS, TOTAL (MG/L 4S P) .05 .07 .21	PHORUS. ORTHO. TOTAL (MG/L AS P) .02 .06 .04	GROWTH POTENI- TIAL - ROTTLE TEST (MG/L)	MFNT+ SUS- PFNDED (MG/L) 49 134 300 F0	MENT DIS- CHARGE. SUS- PENDED (T/DAY) 22 94 612
OCT 07 NOV 11 OFC 10 JAN 07 FFH 04 MAR 08 APQ 05	GFN, AMMONIA TOTAL (MG/L AS N) .09 .02 .05 	GFN- ORGANIC TOTAL (MG/L AS N) -15 -26 -40 	GEN-AM-MONIA ONGANIC TOTAL (MG/L AS N)	6FN- TOTAL (MG/L AS N) .90 .62 .85	PHORUS, TOTAL (MG/L AS P) .05 .07 .21 	PHORUS. ORTHO. TOTAL (MG/L AS P) .02 .06 .04	GROWTH POTENT TIAL - ROTTLE TEST (MG/L)	MENT+ SUS- PFHDED (MG/L) 49 13* 300 F0 51	MFNI DIS- CHARGE. SUS- PENDED (T/DAY) 22 94 612
OCT 07*** NOV 11*** OFC 10** JAN 07*** FFH 04*** MAR 05** JUN 01***	GFNv AMMONIA TOTAL (MG/L AS N) .09 .02 .05	GFN- ORGANIC TOTAL (MG/L AS N) -15 -26 -40 	GEN-AM-MONIA - OHGANIC TOTAL (MG/L AS N) - 24 - 28 - 45 25 25	GEN. TOTAL (MG/L AS N) .90 .62 .85	PHORUS. TOTAL (MG/L AS P) .05 .07 .21	PHORUS. ORTHO. TOTAL (MG/L AS P) .02 .06 .04	GROWTH POITSM- TIAL ROTTLF TEST (MG/L)	MENT+ SUS- PFHDED (MG/L) 49 13* 300 F0 51 E0	MENT DIS- CHARGE. SUS- PENDED (T/DAY) 22 94 612
OCT 07*** NOV 11*** OFC 10** JAN 67*** FFH 04*** APR 05*** JHN 01*** JHN 12***	GFNv AMMONIA TOTAL (MG/L AS N) .09 .02 .05	GFN- ORGANIC TOTAL (MG/L AS N) -15 -26 -40 	GEN-AM-MONIA - ONGANIC TOTAL (MG/L AS N) -24 -28 -45	GEN. TOTAL (MG/L as N) .90 .62 .85	PHORUS. TOTAL (MG/L AS P) .05 .07 .2102	PHORUS. ORTHO. TOTAL (MG/L AS P) .02 .06 .04	GROWTH POTENTIAL	MENT- SUS- PFHDED (MG/L) 49 134 300 F0 51 E0 16	MENT DIS- CHARGE. SUS- PENDED (T/DAY) 22 94 612 41
0CT 07*** NOV 11*** OFC 10** JAN 07** FFH 04** MAH 08** MAH 05** JIN 01** JIN	GFNv AMMONIA TOTAL (MG/L AS N) .09 .02 .05 .09	GFN- ORGANIC TOTAL (MG/L AS N) -15 -26 -40 	GEN-AM-MONIA ONGANIC TOTAL IMG/L AS N)	GEN. TOTAL (MG/L AS N) .90 .62 .95	PHORUS. TOTAL (MG/L AS P) .05 .07 .210202	PHORIUS. ORTHO. TOTAL (MG/L AS P) .02 .06 .04	GROWTH POTENTIAL	MFNT+ SUS- PFNDED (MG/L) 49 13* 300 F0 51 E0 16	MFNT OIS- CHARGE. SUS- PENDED (T/DAY) 22 94 612 41 15 4.4

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01516820 - TIOGA RIVER AT LAMBS CREEK, PA.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIMF	ALUM- INUM. DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM. DIS- SOLVED (UG/L AS CR)	COBALT. DIS- SOLVED (UG/L AS CO)	COPPER. DIS- SOLVED (UG/L AS CU)
OCT							
07 DEC	0980	3600					
10	0940	40	O	5	0	15	0

			MANGA-			
DATE	IRON+ DIS- SOLVED (UG/L AS FE)	LEAD. DIS- SOLVED (UG/L AS PB)	NESE + DIS + SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SILVER. DIS- SOLVFD (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
0CT 07	220		4500			450
DEC	50	4	710	<.5	0	60

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	STREAM- FLOW. INSTAM- TAMEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UN1TS)	TEMPER- ATURE (DEG C)	OXYGEN. DIS- SOLVED (MG/L)	OXYGEN. DIS- SOLVED (PER- CENT SATUR- ATION)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L AS CACO3)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)
OCT											
06	1600	35	468	4.4	16.0	9.8	98	1.0	49	0	Q
09	1345	165	243	5.0	1.5	13.2	94	.5	25	5	0
DEC 14	1000	E118	233	6.0	.0	13.6	93	.3	16	6	0
JAN	1000	6110	233	0.0	••	13.6	73	• 3	16	•	v
12	1100	E54	336	4.6	.0	12.6	86	1.6	78	1	0
FEB 08	1045	E34	414	4.6	.0	13.2	90	1.1	57	1	0
MAR										-	-
07 Apr	0900	521	159	4.7	.5	13.5	94	.3	16	1	0
13	0930	225	235	4.6	10.0	10.8	96	.8	42	1	0
MAY					_			_			
02	0945	205	214	3.8	11.5	10.3	94	.9	47	0	0
09	1020	51	397	4.3	13.0	10.4	98	.9	47	0	0
JUL											
06	0930	65	428	4.0	22.5	8.4	96	1.1	56	0	0
AUG 08	0920	43	385	4.5	22.5	8.6	100	1.2	58		
SEP	UYEV	•3	365	4.5	22.5	8.0	100	1.6	50	0	0
15	1000	40	430	4.8	14.0	10.0	96	1.0	41	2	0

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01516820 - TIOGA RIVER AT LAMBS CREEK, PA.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

						NITRO-		N[TPO-		NITHO-	
		CARBON		CHLO-	NITRO-	GEN.	NITRO-	GEN.	NITRO-	GEN.	NITRO-
	ALKA-	DIOXIDE	SULFATE	RIDE.	GEN.	NITRATE	GEN,	NITRITE	GFN+	N02+N03	GEN,
	LINITY	DIS-	015-	D15-	NITRATE	D15-	NITRITE	D15-	E00+50N	015-	AMMONIA
	(MG/L	SOLVED	SOLVED	SOLVED	TOTAL	SOLVED	TOTAL	SOLVED	TOTAL	SOLVED	TOTAL
	AS	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L
DATE	CACO3)	AS C021	AS 504)	AS CL)	AS NI	AS NI	AS NI	AS NI	AS N)	AS N)	AS N)
OCT											
06	0	.0	210	11							
NOV	-	-									
09	2	32	86	4.6							
DEC											
14	5	9.6	86	9.2	.66		.01		.67		-14
JAN	_	_									
12	1	40	150	8.6							
FEB	1	40	190								
08 Mar		••	140	8.3							
07	1	32	53	5,1	.76		.01		.77		.06
APR	•	-	J J	3,1	•		•••		•		***
13	1	40	87	8.8							
MAY	_		•								
02	0	.0	83	5.1							
JUN											
09	0	.0	170	9.6	.34		.00		. 34		.00
JUL	0		180	7.6							
AUG	v	•0	100	7.0							
08	0	.0	180	9.8							
SEP	-	• • •									
15	2	51	180	13		.34		.00		. 34	
	NITRO-		NITRO-	NITRO-	NITRO-						SEDI-
	NITRO- GEN+	NITRO-	NITRO- GEN.	NITRO- GEN, AM-	NITRO- GEN.AM-			PHOS-	PHOS-		SEDI- MENT
		GEN.	NITRO- GEN: ORGANIC	NITRO- GEN,AM- MONIA +	NITRO- GEN, AM- MONIA •	NITRO-	PH05~	PHOS- PHORUS+	PHOS-	SEDI-	SEDI- MENT DIS-
	GEN, AMMONIA DIS-	GEN. ORGANIC	GEN.	GEN, AM-	GEN, AM-	NITRO- GEN•	PHORUS,			SEDI- MENT.	MENT
	GEN, AMMONIA DIS- SOLVED	GEN. ORGANIC TOTAL	GEN. ORGANIC DIS- SOLVED	GEN, AM- MONIA + ORGANIC TOTAL	GEN, AM- MONIA + ORGANIC DIS.	GEN+ TOTAL	PHORUS.	PHORUS. DIS- SOLVED	PHORUS, OPTHO. TOTAL	MENT. SUS-	MENT DIS- CHARGE, SUS-
	GEN, AMMONIA DIS- SOLVED (MG/L	GEN. ORGANIC TOTAL (MG/L	GEN. ORGANIC DIS- SOLVED (MG/L	GEN,AM- MONIA + ORGANIC TOTAL (MG/L	GEN, AM- MONIA + ORGANIC DIS. (MG/L	GEN+ TOTAL (MG/L	PHORUS, TOTAL (MG/L	PHORUS: DIS- SOLVED (MG/L	PHORUS, OPTHO. TOTAL (MG/L	MENT. SUS- PENDED	MENT DIS- CHARGE, SUS- PENDED
DATE	GEN, AMMONIA DIS- SOLVED	GEN. ORGANIC TOTAL	GEN. ORGANIC DIS- SOLVED	GEN, AM- MONIA + ORGANIC TOTAL	GEN, AM- MONIA + ORGANIC DIS.	GEN+ TOTAL	PHORUS.	PHORUS. DIS- SOLVED	PHORUS, OPTHO. TOTAL	MENT. SUS-	MENT DIS- CHARGE, SUS-
OCT	GEN, AMMONIA DIS- SOLVED (MG/L	GEN. ORGANIC TOTAL (MG/L	GEN. ORGANIC DIS- SOLVED (MG/L	GEN,AM- MONIA + ORGANIC TOTAL (MG/L	GEN, AM- MONIA + ORGANIC DIS. (MG/L	GEN+ TOTAL (MG/L	PHORUS, TOTAL (MG/L	PHORUS: DIS- SOLVED (MG/L	PHORUS, OPTHO. TOTAL (MG/L	MENT. SUS- PENDED	MENT DIS- CHARGE, SUS- PENDED
0CT 06	GEN, AMMONIA DIS- SOLVED (MG/L	GEN. ORGANIC TOTAL (MG/L	GEN. ORGANIC DIS- SOLVED (MG/L	GEN,AM- MONIA + ORGANIC TOTAL (MG/L	GEN, AM- MONIA + ORGANIC DIS. (MG/L	GEN+ TOTAL (MG/L	PHORUS, TOTAL (MG/L	PHORUS: DIS- SOLVED (MG/L	PHORUS, OPTHO. TOTAL (MG/L	MENT. SUS- PENDED	MENT DIS- CHARGE, SUS- PENDED
0CT 06 NOV	GEN, AMMONIA DIS- SOLVED (MG/L AS N)	GEN. ORGANIC TOTAL (MG/L AS N)	GEN. ORGANIC DIS- SOLVED (MG/L AS N)	GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN, AM- MONIA + ORGANIC DIS+ (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS. DIS- SOLVED (MG/L AS P)	PHORUS, OPTHO. TOTAL (MG/L AS P)	MENT, SUS- PENDED (MG/L)	MENT DIS- CHARGE, SUS- PENDED (T/DAY)
0CT 06 NOV 09	GEN; AMMONIA DIS- SOLVED (MG/L AS N)	GEN+ ORGANIC TOTAL (MG/L AS N)	GEN+ ORGANIC DIS- SOLVED (MG/L AS N)	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PHORUS+ TOTAL (MG/L AS P)	PHORUS* DIS- SOLVED (MG/L AS P)	PHORUS, OPTHO. TOTAL (MG/L AS P)	MENT. SUS- PENDED (MG/L)	MENT D15- CHARGE, SUS- PENDED (T/DAY)
0CT 06 NOV 09 DEC	GEN, AMMONIA DIS- SOLVED (MG/L AS N)	GEN. ORGANIC TOTAL (MG/L AS N)	GEN+ ORGANIC DIS- SOLVED (MG/L AS N)	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN, AN- MONIA + ORGANIC DIS. (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS. DIS- SOLVED (MG/L AS P)	PHORUS, OPTHO. TOTAL (MG/L AS P)	MENT, SUS- PENDED (MG/L) FO	MENT DIS- CHARGE, SUS- PENDED (T/DAY)
0CT 06 NOV 09 DEC 14	GEN, AMMONIA DIS- SOLVED (MG/L AS N)	GEN. ORGANIC TOTAL (MG/L AS N)	GEN. ORGANIC DIS- SOLVED (MG/L AS N)	GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN, AM- MONIA + ORGANIC DIS+ (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS. DIS- SOLVED (MG/L AS P)	PHORUS, OPTHO. TOTAL (MG/L AS P)	MENT, SUS- PENDED (MG/L)	MENT DIS- CHARGE, SUS- PENDED (T/DAY)
0CT 06 NOV 09 DEC	GEN, AMMONIA DIS- SOLVED (MG/L AS N)	GEN. ORGANIC TOTAL (MG/L AS N)	GEN+ ORGANIC DIS- SOLVED (MG/L AS N)	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN, AN- MONIA + ORGANIC DIS. (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS. DIS- SOLVED (MG/L AS P)	PHORUS, OPTHO. TOTAL (MG/L AS P)	MENT. SUS- PENDED (MG/L) F0	MENT DIS- CHARGE, SUS- PENDED (T/DAY)
OCT 06 NOV 09 DEC 14 JAN 12	GEN, AMMONIA DIS- SOLVED (MG/L AS N)	GEN. ORGANIC TOTAL (MG/L AS N)	GEN+ ORGANIC DIS- SOLVED (MG/L AS N)	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN, AM- MONIA + ORGANIC DIS- (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS+ DIS- SOLVED (MG/L AS P)	PHORUS, OPTHO. TOTAL (MG/L AS P)	MENT. SUS- PENDED (MG/L) F0 I1	MENT DIS- CHARGE, SUS- PENDED (T/DAY)
OCT 06 NOV 09 DEC 14 JAN 12 FEB 08	GEN, AMMONIA DIS- SOLVED (MG/L AS N)	GEN. ORGANIC TOTAL (MG/L AS N)	GEN+ ORGANIC DIS- SOLVED (MG/L AS N)	GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN, AM- MONIA + ORGANIC DIS- (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS+ DIS- SOLVED (MG/L AS P)	PHORUS, OPTHO. TOTAL (MG/L AS P)	MENT. SUS- PENDED (MG/L) F0	MENT DIS- CHARGE, SUS- PENDED (T/DAY)
0CT 06 NOV 09 0EC 14 JAN 12 FER 08	GEN, AMMONIA DIS- SOLVED (MG/L AS N)	GENO ORGANIC TOTAL (MG/L AS N)	GEN- ORGANIC DIS- SOLVED (MG/L AS N)	GEN, AM- MONIA • ORGANIC TOTAL (MG/L AS N)	GEN, AM- MONIA ** ORGANIC DIS* (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS+ DIS- SOLVED (MG/L AS P)	PHORUS, OPTHO. TOTAL (MG/L AS P)	MENT. SUS- PENDED (MG/L) FO 11	MENT DIS- CHARGE, SUS- PENDED (T/DAY)
OCT 06 NOV 09 DEC 14 JAN 12 FER 07	GEN, AMMODIS- SOLVED (MG/L AS N)	GENOORGANIC TOTAL (MG/L AS N)	GEN+ ORGANIC DIS- SOLVED (MG/L AS N)	GEN, AM- MONIA - ORGANIC TOTAL (MG/L AS N)	GEN, AM- MONIA • ORGANIC DIS• (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS+ DIS- SOLVED (MG/L AS P)	PHORUS, OPTHO. TOTAL (MG/L AS P)	MENT. SUS- PENDED (MG/L) F0 I1	MENT DIS- CHARGE, SUS- PENDED (T/DAY)
OCT 06 NOV 09 DEC 14 JAN 12 FOR 07 APR	GEN, AMMONIA DIS- SOLVED (MG/L AS N)	GEN. ORGANIC TOTAL (MG/L AS N)	GEN- ORGANIC DIS- SOLVED (MG/L AS N)	GEN-AM- MONIA - ORGANIC TOTAL (MG/L AS N)28	GEN, AM- MONIA + ORGANIC DIS- (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS+ DIS- SOLVED (MG/L AS P)	PHORUS, OPTHO. TOTAL (MG/L AS P)	MENT, SUS- PENDED (MG/L) F0 11 12 1 F0	MENT DIS- CHARGE, SUS- PENDED (T/DAY)
OCT 06 NOV 09 DEC 14 JAN 12 FER 07	GEN, AMMONIA DIS- SOLVED (MG/L AS N)	GENO ORGANIC TOTAL (MG/L AS N)	GEN- ORGANIC DIS- SOLVED (MG/L AS N)	GEN, AM- MONIA • ORGANIC TOTAL (MG/L AS N)	GEN, AM- MONIA ** ORGANIC DIS* (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS+ DIS- SOLVED (MG/L AS P)	PHORUS, OPTHO. TOTAL (MG/L AS P)	MENT. SUS- PENDED (MG/L) FO 11	MENT DIS- CHARGE, SUS- PENDED (T/DAY)
OCT 06 NOV 09 0EC 14 JAN 12 FER 07 MAR 07	GEN, AMMONIA DIS- SOLVED (MG/L AS N)	GEN. ORGANIC TOTAL (MG/L AS N)	GEN- ORGANIC DIS- SOLVED (MG/L AS N)	GEN-AM- MONIA - ORGANIC TOTAL (MG/L AS N)28	GEN, AM- MONIA + ORGANIC DIS- (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS+ DIS- SOLVED (MG/L AS P)	PHORUS, OPTHO. TOTAL (MG/L AS P)	MENT, SUS- PENDED (MG/L) F0 11 12 1 F0	MENT DIS- CHARGE, SUS- PENDED (T/DAY)
0CT 06 NOV 09 DEC 14 JAN 12 FER 07 APR 13 MAY 02	GEN, AMMONIA DIS- SOLVED (MG/L AS N)	GEN- ORGANIC TOTAL (MG/L AS N)	GEN, ORGANIC DIS- SOLVED (MG/L AS N)	GEN-AM- MONIA - ORGANIC TOTAL (MG/L AS N)2831	GEN, AM- MONIA - ORGANIC DIS- (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS+ DIS- SOLVED (MG/L AS P)	PHORUS, OPTHO. TOTAL (MG/L AS P)	MENT, SUS-PENDED (MG/L) F0 11 12 1 E0 23	MENT DIS- CHARGE, SUS- PENDED (T/DAY) 4.9 32 3.0 5.0
OCT 06 NOV 09 DEC 14 JAN 12 FER 07 MAR 07 APR 13 MAY 02 JUN 09	GEN, AMMONIA DIS- SOLVED (MG/L AS N)	GEN. ORGANIC TOTAL (MG/L AS N)	GEN, ORGANIC DIS- SOLVED (MG/L AS N)	GEN-AM- MONIA - ORGANIC TOTAL (MG/L AS N)2831	GEN, AM- MONIA - ORGANIC DIS- (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS+ DIS- SOLVED (MG/L AS P)	PHORUS, OPTHO. TOTAL (MG/L AS P)	MENT, SUS-PENDED (MG/L) F0 11 12 1 E0 23	MENT DIS- CHARGE, SUS- PENDED (T/DAY)
0CT 06 NOV 09 DEC 14 JAN 12 FER 07 APR 13 MAR 07 APR 13 MAY 09 JUN 09	GEN, AMMONIA DIS- SOLVED (MG/L AS N)	GEN- ORGANIC TOTAL (MG/L AS N)	GEN+ ORGANIC DIS- SOLVED (MG/L AS N)	GEN,AM-MONIA	GEN, AM- MONIA - ORGANIC DIS. (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PNORUS, TOTAL (MG/L AS P)	PHORUS-DIS-SOLVED (MG/L AS P)	PHORUS, OPTHO. TOTAL (MG/L AS P)	MENT, SUS, PENDED (MG/L) F0 11 12 1 F0 23 5	MENT DIS- CHARGE, SUS- PENDED (T/DAY) 4.9 32 3.0 5.0
OCT 06 NOV 09 DEC 14 JAN 12 FER 08 APR 13 APR 13 10	GEN, AMMONIA DIS- SOLVED (MG/L AS N)	GEN- ORGANIC TOTAL (MG/L AS N)	GEN+ ORGANIC DIS- SOLVED (MG/L AS N)	GEN-AM- MONIA - ORGANIC TOTAL (MG/L AS N)2831	GEN, AM- MONIA - ORGANIC DIS- (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS, DIS- SOLVED (MG/L AS P)	PHORUS, OPTHO. TOTAL (MG/L AS P)	MENT, SUS, PENDED (MG/L) F0 11 12 1 F0 23	MENT DIS- CHARGE, SUS- PENDED (T/DAY) 4.9 32 3.0 5.0
OCT 06 NOV OEC 14 JAN 12 FEB 07 APR 13 MAR 13 MAY JUN JUN JUL JUN JUL AUG AU	GEN, AMMONIA DIS- SOLVED (MG/L AS N)	GEN- ORGANIC TOTAL (MG/L AS N)	GEN+ ORGANIC DIS- SOLVED (MG/L AS N)	GEN,AM-MONIA	GEN, AM- MONIA - ORGANIC DIS. (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P) .03	PHORUS-DIS-SOLVED (MG/L AS P)	PHORUS, OPTHO. TOTAL (MG/L AS P)	MENT, SUS- PENDED (MG/L) F0 11 12 1 F0 23 5	MENT DIS- CHARGE, SUS- PENDED (T/DAY) 4.9 32 3.0 5.0 1.9
OCT 06 NOV 09 DEC 14 JAN 12 FER 08 APR 13 APR 13 10	GEN, AMMONIA DIS- SOLVED (MG/L AS N)	GEN- ORGANIC TOTAL (MG/L AS N)	GEN- ORGANIC DIS- SOLVED (MG/L AS N)	GEN, AM-MONIA - ORGANIC TOTAL (HG/L AS N)	GEN, AM- MONIA - ORGANIC DIS. (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PNORUS, TOTAL (MG/L AS P)	PHORUS- DIS- SOLVED (MG/L AS P)	PHORUS, OPTHO. TOTAL (MG/L AS P) .01	MENT, SUS, PENDED (MG/L) F0 11 12 1 F0 23 5	MENT DIS- CHARGE, SUS- PENDED (T/DAY) 4.9 32 3.0 5.0

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01516020 - TIOGA RIVER AT LAMBS CREEK. PA.

WATER QUALITY DATA. WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM- FLOW+ INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DFG C)	OXYGEN. DIS- SOLVED (MG/L)	DXYGEN. DIS- SOLVED (PER- CENT SATUR- £TION)	COLI- FORM, FECAL. 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL+ KF AGAR (COLS- PER 100 ML)	HARD- NESS (MG/L AS CACO3)
OCT										
27	1000	320	270	4.4	10.5	10.8	96	κş	52	86
MAR 24	1020	1780	135	5.3	2.0	13.3	96	0	190	44
25	0955	653	165	5.1	13.0	10.4	98	<1	K5	56
29	0955	104	325	4.5	21.5	9.0	101	<1	K5	120
JUL 25	0950	30	515	4.0	21.0	9.4	104	<1	K10	190
AUG 24 SEP	1030	36	505	3.8	21.5	8.7	98	<1	<1	210
27	0955	51	335	4.B	12.0	10.7	99	<1	к3	150

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM. DIS- SOLVED (MG/L AS MG)	SODIUM. DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SONIUM AD- SORP~ TION PATIO	POTAS- SIUM. DIS- SOLVED (MG/L AS K)
OCT									
27 Mar	86	•6	31	I &	10	5.6	6	• 1	1.4
24	41	.4	18	10	4.5	2.6	11	.2	1.2
MAY 25	55	.3	17	13	5.6	3.2	11	•2	1.6
JUN 28	120	.9	46	26	13	5.4	9	•2	2.0
JUL									-
25	190	1.2	59	39	5.5	7.3	8	•5	2.3
AUG 24	210	1.9	94	44	25	7.0	7	• 5	2.4
SEP 27	150	. 8	39	30	19	5.2	7	• 2	1.7

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01516820 \times TIGGA RIVER AT LAMBS CREEK, PA.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATF (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACQ3)	CARMON DIOXIDE OIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE. DIS- SOLVED (MG/L AS CL)	NITRO- GEN+ NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GFN: NITPITE DIS- SOLVED IMG/L AS NI	NITRO- GEN- NOZ-NOT DIS- SOLVED IMG/L AS NI
oc† 27	0	o	0	.0	110	3.4	.51	.00	•51
MAR			3	29	47	3.2	.54	.00	.54
74 May	•	0	3	24	•,	- • •			
25	t	0	1	13	59	4.2	.34	.00	.34
28	0	0	0	•0	130	9,5	.54	.00	.54
JUL		_	0	.0	250	11	.37	.00	.37
25 AUG	0	D	•	••					
24	0	0	0	•0	250	11	.49	.00	.49
SEP 27	5	0	2	51	170	8.6	.40	.00	• 40
DATE	NITRO- GEN. AMMONIA DIS- SOLVED (MG/L AS N)	N1TRO- GEN. ORGANIC D1S- SOLVED (MG/L AS N)	NITRO- GEN+AM- MONIA + ORGANIC DIS- (MG/L AS N)	PHOS- PHORUS: OIS- SOLVED (MG/L AS P)	PHYTO- PLANK- TON- TOTAL (CELLS PFR ML)	CHLORO- PHYLL A PHYTH- LANK- TON- UNCORR- (USPL)	CHLORG- PHYLL B PHYTG- PLANK- TON- UNCORR- (UG/L)	SERI- MENT. SUS- PENDED (MG/L)	SEDI- MEHT DIS- CHARGF. SUS- PENOFD LT/DAY)
OCT			.27	.00				20	17
27 Mar	.08	.19						-	=
24	.07	.23	.30	.00	160	.000	.000	54	560
MAY 25	.04	.25	.29	.00	110	.000	.000	39	64
JUN	.01	.25	.26	.01	1700	.000	.000	28	7.9
28 JUL					-	_	1.00	ΕO	
25 AUG	.05	-11	.16	.00	5000	7.17	1.42	_	
24	.17	.11	.28	.03	10000	.000	.000	F1	
SEP 27	.12	.00	.12	.00	460	.000	.000	11	1.5

Table 24. -- Water-quality data collected from September 1973 to September 1978 -- Continued 01516820 TIORA RIVER AT LAMBS CREEK, PA. PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978

p.	TYTOPLANK	ION AN	ALYSES.	OCTORE	H 1977 11	SEPT	FMHEK 1A	78				
DETE TIME		24•7A 020		25•7A 955		28•78 955		25.78 950		24.78 030		27.78 955
TOTAL CELLS/ML		160		110	1	700	5	000	10	000		460
DIVENSITY: DIVISION .CLASS .ORDERFAMILYGENUS		1.3 1.3 1.3 1.9		0.0 0.0 0.0 1.8 1.8		1.1 1.1 1.1 1.6 1.9		0.7 0.7 0.8 0.8		0.1 0.1 0.1 0.1 0.1		0.5 0.5 0.5 0.7
ORGANISM	CELLS /ML	PER- CFNT	CFLLS /ML	PER-	CELLS /ML	PER- CENT	CELLS /ML	PFR- CFNT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GHEEN ALGAE: .CHLOROCOCCALFSOOCYSTACEAE												
SCENEDESMOS		-		-		-	•	0		-		-
SCENEDESMUSVOLVOCALESCHLAMYDOMONADACEAE		-		•		-	59	1		•		•
***-CHEAMYDOMONAS		-		-	55	1		-	•	0		-
CHRYSOPHYTA .FACILLARIOPHYCEAE .CENTRALESCOSCINODISCACEAEMELOSIPA		_		_		_	670	13		_		_
PENNALES		-		-		-	0/0	13		-		
ACHNANTHACEAEACHNANTHESCYMRELLACEAE		-		-		-		-			55	5
CYMBELLA		-	32#	59	160	9	44	1		-		-
EUNOTIACEAE EUNOTIA FRAGILARIACFAF		-		-	560₩	32		-	67	ı		-
SYNEDRAGOMPHONEMATACEAE	14	8		-		-		-		-		-
GOMPHONEMANAVICULACEAE	14	8	16	14		-		-		-		-
NAVICULA NITZSCHIACEAE	14	8	48#	43	55	1	•	0	•	0	5.5	5
NITZSCHTACEAESURTRELLACEAE		-		-	55	1		-		-	11	5
SURIRFLLA	14	8	16	14		-	·	-		-		•
CYANOPHYTA (BLUE-GREEN ALGAE) .CYANOPHYCFAEHURMOGONALESOSCILLATORIACEAE												
LYNGRYA	95#	58		-	800#		. 200	-	9900#	99		-
OSCILLATORIA		-		-	130	8	4200#	84		-	400#	88
EUGLENOPHYTA (EUGLENOIDS) .EUGLENOPHYCEAE .EUGLENALFSEUGLENACEAETPACHELONONAS	14	Ą		_		_				_		_
**************************************	. •	7		-		-		-		_		

NOTE: # - NOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
- OBSERVED ORGANISM: MAY NOT HAVE REEN COUNTED: LFSS THAN 1/2%

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01517500 - MILL CR NR TIOGA, PA.

WATER QUALITY DATA, WATER YEAR OCTOBER 1972 TO SEPTEMBER 1973

DATE	TIME	STREAM- FLOW• INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH {UNITS}	TEMPER- ATURE (DEG C)	OXYGEN. DIS- SOLYED (MG/L)	CENT SATUR-	ACIDITY TOTAL HEATED (MG/L	ACIDITY (MG/L AS CACO3)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACO3)
SEP 05	1640	6.3	197	8.8	29.0	11.2	143	.0	.0	67		65
	CARBON DIOXIDE DIS- SOLVED	SULFATE DIS-	CHLO- RIDE. DIS- SOLVED	NITRO- GEN: NITRATE TOTAL	NITRO- GEN: AMMONIA Total	NITRO~ GEN•	NITRO- GEN-AM- HONIA +	NITRO-		PHOS- PHORUS: Ortho. Total	SEDI~ MENT. SUS-	SEDI- MENT DIS- CHARGE. SUS-
DATE	(MG/L AS CO2)	(MB/L AS 504)	(MG/L AS-CL)	(MG/L AS N)	(MG/L AS N)	(MG/L AS N)	(MG/L AS N)	(MG/L AS N)	(MG/L AS P)	(MG/L AS P)	PENDED (MG/L)	PENDED (T/DAY)
SEP 05	.2	23	7.8	.07	.16	.34	.50	.57	.01	.01	12	.20
			WATER QU	LITY DATA	A, WATER	YEAR OCTO	RER 1973	TO SEPTEM	RER 1974			
DATE	TIME	STRFAM- FLOW+ INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH {UNITS}	TEMPER- ATURE (DEG C)	OXYGEN. DIS- SOLVED (MG/L)	OXYGEN. DIS- SOLVED (PER- CENT SATUR- ATION)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L AS CACO3)	BICAR- BONATE (MG/L AS HCO3)	CAR- RONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACO3)
0CT 11	0915	10	214	7.8	12.5	10.1	94			100	0	84
NOV 07	1535	25	166	8.5	4.5	13.0	100	.0	.0	68	0	57
13	1035	113	132	6.6	1.5	13.6	97	.0		30	0	32
JAN 09	1450		143	6.4	.0	13.8	94	•1		47	0	39
FEB 13	1400		129	7.6	2.0	13.8	100	.0		44	0	36
MAR 13	1445	190	109	7.4	1.0	13.7	96	•1		30	0	25
02	1330	473	123	7.6	4.5	12.8	96	.0		31	0	28
Ol JÜN	1345	A6	137	8.4	16.0	10.6	106	.0	.0	49	5	37
12	1345	28	152	8.0	19.5	9.5	102	.0		69	0	52
17	1545	6.5	189	8.7	26.5	9.2	113	.0	.0	76	6	64
. 14 SEP	1400	6.9	185	8.6	27,5	9.6	120	•0	.0	82	•	69
15	1350	7.2	192	8.5	24.0	9.3	109	.0	.0	85	5	69
DATE	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CMLO- RIDE. DIS- SOLVED (MG/L AS CL)	NITRO- GEN: NITRATE TOTAL (MG/L AS N)	NITRO- GEN+ AMMONIA TOTAL (MG/L AS N)	NITRO- GEN. ORGANIC TOTAL (MG/L AS N)	NITRO- GFN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN. TOTAL (MG/L AS N)	PHOS- PHORUS. TOTAL (MG/L AS P)	PHOS- PHORUS. ORTHO. TOTAL (MG/L AS P)	SEDI- MENT: SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE. SUS- PENCED (YAGVY)
0CT	2.5	14	10	.02	.18	.15	.33	.35	.03	.00	6	.16
NOV 07	.3	16	7.0	.14	.08	.19	.27	.41	.01	.00	•	.21
DEC 13	12	20	2.5	.72	.06	.19	.25	.97	.03	.02	€o	
JAN 09	30	20	5.5	1.0	.09	.26	.37	1.4	10.	.01	9	
FEB 13	1.4	17	6.0	.70	.02	.24	.26	. 96	.01	.01) 9	
MAR I3	1.9	0.2	4.0	.45	.05	.21	.27	.72	.02	.01	6	3.1
02	1.2	19	4.5	.70	.02	. 35	.37	1.1	.08	.02	10	13
01	•3	19	4.2	.10	.16	.79	.45	.55	.02	.01	1	.23
JUN 12	1.1	15	6.0	.54	-11	• 31	.47	.92	.04	.01	13	.95
JUL 17	.3	17	6.4	.16	.05	-14	.19	. 35	.01	.00	1	.02
14	.4	12	7.0	.07	.09	-19	.24	. 35	.01	.00	3	.06

Atamena Comment

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01517500 - MILL CR NR TIOGA- PA.

WATER QUALITY	DATA.	WATER	YEAR	OCTOBER	1974	TO	SEPTEMBER 19	75

	•	AIEN GUAL	TIV DATA.	MAISH AF	AN UCIUM	EH 1414	ID SEPTE	4854 1474	•	
DATE	TIME	STREAM FLOW INSTAN TANEOL (CFS)	DUCT- I- ANCE IS (MICRO	PH - (UNITS	TFMPE ATUR) (DEG	€ SOL	D 50 5EN+ (P IS- C .VED SA	ER- TO ENT HEA TUR- (A	ATED (M 4G/L	DITY G/L AS CO31
0CT 10	1415	8.	.1 20:	? A.		.0	10.4	104	.0	
NOV 07		41	17:				2.8	108	.0	1.0
DEC		394	11				13.6	99	.0	.0
JAN 14			11				14.2	99	.0	4.0
FFB 03		-	- 15				13.0	90	.0	1.0
MAR 05		78	15				13.0	90		20
APR	_		11:				12.0	98	.0	1.0
HAY 14			12:				10.2	102	•0	•0
.RJN 10	1400	100	12				n.4	89	.0	5.0
JUL 09	0945		10				A.9	100	.0	5.0
AUG 06	1300	8.					A.5	93	.1	6.0
SEP 11		11	20				1.0	112	.0	.0
		**	-	·	•			•••	• • •	•
	BICAR- BONATE (MG/L AS	CAR-	ALKA- LINITY IMG/L AS	CARMO DIOXID DIST SOLVE (MS/L	E SULFA DIS-	TE RIC DIS ED SOL	DE• G S- NIT .VFO TO	EN. (RATE NII TAL TO	SFN: G TRITE NO? STAL TO	TRO- EN: •NO3 TAL G/L
DATE	HC03)	AS COS								Ni
0CT		6	1 7.	3 1.) 20		8.0	.02	••	
NOV 07			0 5	-	=		9.0	.14		
DEC 09	. 2	•	0 3					1.1		
JAN 14	. 2	6	0 2		21		5.0	.90		
FFR 03			0 1				5.0	.68	**	
MAR 05		6	0 3				5.5	.95		
APR 01		5	0 3	-			6.0	.50		
MAY 14	4	ı	0 3		1 18		3.5	.13	.01	.14
.JUN 10	. •	6	0 3	٠,٠	7 10		3.5	.68		
ЯН. 19	8	7	0 7:	? 1.:	1 17		0.0	.16		
AUG 06		5	0 6	5.	4 13		9.5	.04	.01	.05
SFP	8		0 7	3 .	6 1R		9.0	.00		
				ITRO-					SEN1-	
	A	NITRG- GEN+ MMONIA G TOTAL (MG/L AS N)	GEN+ MI PREANIC OF TOTAL (MG/L	RGANIC FOTAL ING/L	NITRO- GEN. TOTAL (MG/L AS NI	PHOS- PHORUS. TOTAL (MG/L AS P)	PHOS- PHORUS. ORTHO. TOTAL (NG/L AS P)	SEDI- MENT. SUS- PENDEN (MG/L)		
	CT						••	FO	.00	
N	10	.07	.13	.26	.22	.02	.00	7		
0	07 EC 09	.00	.46	.51	1.6	.06	.04	74		
J	AN 14	.07	.26	.2A	1.7	.03	.02			
F	E9 01,	.02	.30	.37	1.0	.02	.01	FO		
34	AR 05	.01	.26	.27	1.2	.02	.01	, ,		
	PR 01	.00	.16	-16	-66	.01	.01	1		
P	14	.00	.19	.19	. 13	.02	.01	·		
J	10	.01	.27	.28	.96	.03	.03	,		
J	1UL	.09	.23	. 32	,48	.02	.01	F.G		
	0A	.01	.12	. 3.3	,16	.01	.01	f (
5	ΕΡ 11	.02	.12	.10	.14	.01	.00	f (
								• • •		

Table 24.--Water-quality data collected from September 1973 to September 1978.--Continued 01517500 - MILL CR NR TIOGA. PA.

WATER QUALITY DATA. WATER YEAR OCTOBER 1975 TO SEPTEMPER 1976

DATE	TIME	STREAM- FLOW: INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN. DIS- SOLVED (MG/L)	OXYGFN: DIS- SOLVED (PER- CENT SATUR- ATION)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L AS CA(O3)
OCT									
07 NOV	1045	45	160	7.2	12.0	10.3	95	•0	5.0
ll DEC	1030	49	182	8.2	9.5	12.2	107	• 0	• 0
10 Jan	1200	558	116	6.7	1.5	13.1	94	.1	4.0
07 FEB	0955		150	6.6	• 0	13.2	90	•1	7.0
05 MAR	0805		129	6.6	.0	14.0	96	.0	5.0
09	0845	104	114	7.2	.0	13.7	94	.0	5.0
06	0800	92	120	7.4	4.5	12.9	100	.1	2.0
MAY 05	1730	45	134	9.0	16.0	10.4	104	.0	.0
JUN 01	1545	43	140	A.4	17.0	10.0	103	•1	• 0
15	1635	24	179	A.6	19.0	9.1	97	.0	• 0
AUG 10	1455	80	140	8.2	19.5	9.2	99	•0	• 0
SEP 07	1515	6.5	193	9.0	22.0	10.9	124	·• 0	•0
	BICAR- BONATE (MG/L AS	CAR- BONATE (MG/L	ALKA- LINITY (MG/L AS	CARRON DIOXIDE DIS- SOLVED (MG/L	SULFATE DIS- SOLVED (MG/L	CHLO- RIDE+ DIS- SOLVED (MG/L	NITRO- GEN+ NITPATE TOTAL (MG/L	NITRO- GEN. NITRITE TOTAL (MG/L	NITRO- GEN+ NO2+NO3 TOTAL (MG/L
DATE	BONATE (MG/L	BONATE	LINITY (MG/L	DIOXIDE DIS- SOLVED	DIS- SOLVED	RIDE. DIS- SOLVED	GEN. NITPATE TOTAL	GEN. NITRITE TOTAL	GEN+ NO2+NO3 TATOT
OCT 07	BONATE (MG/L AS	BONATE (MG/L	LINITY (MG/L AS	DIOXIDE DIS- SOLVED (MG/L	DIS- SOLVED (MG/L	RIDE. DIS- SOLVED (MG/L	GEN. NITPATE TOTAL (MG/L	GFN. NITRITE TOTAL (MG/L	GEN. NO2+NO3 TOTAL (MG/L
oct	BONATE (MG/L AS HCO3)	BONATE (MG/L AS CO3)	LINITY (MG/L AS CACO3)	DIOXIDE DIS- SOLVED (MG/L AS CO2)	DIS- SOLVED (MG/L AS SO4)	RIDE. DIS- SOLVED (MG/L AS CL)	GEN. NITPATE TOTAL (MG/L AS N)	GEN. NITRITE TOTAL (MG/L AS N)	GEN+ NO2+NO3 TOTAL (MG/L AS N)
OCT 07 NOV 11 DEC	BONATE (MG/L AS HC03)	BONATE (MG/L AS CO3)	LINITY (MG/L AS CACO3) 53	DIOXIDE DIS- SOLVED (MG/L AS CO2)	DIS- SOLVED (MG/L AS SO4)	RIDE. DIS- SOLVED (MG/L AS CL)	GEN- NITPATE TOTAL (MG/L AS N) .52	GEND NITRITE TOTAL (MG/L AS N)	GEN+ NO2+NO3 TOTAL (MG/L AS N)
OCT 07 NOV 11 DEC 10	BONATE (MG/L AS HCO3) 60 64	BONATE (MG/L AS CO3)	LINITY (MG/L AS CACO3) 53 53	DIOXIDE DIS- SOLVED (MG/L AS CO2) 6.1	015- 50LVED (MG/L AS 504) 19 17	RIDE. DIS- SOLVED (MG/L AS CL) 5.5 6.0	GEN- NITPATE TOTAL (MG/L AS N)	GEN. NITRITE TOTAL (MG/L AS N)	GEN+ NO2+NO3 TOTAL (MG/L AS N)
OCT 07 NOV 11 DEC 10 JAN 07 FEB	BONATE (MG/L AS HCO3) 60 64 37	BONATE (MG/L AS CO3)	LINITY (MG/L AS CACO3) 53 53 28	DIOXIDE DIS- SOLVED (MG/L AS CO2) 6.1 .6	015- 50LVED (MG/L AS 504) 19 17 16	RIDE+ DIS- SOLVED (MG/L AS CL) 5.5 6.0 5.1	GEN. NITPATE TOTAL (MG/L AS N) .52 .09	GFN. NITRITE TOTAL (MG/L AS NI	GEN+ NO2+NO3 TOTAL (MG/L AS N)
OCT 07 NOV 11 DEC 10 JAN 07 FEB 05	80NATE (MG/L AS HC03) 60 64 37 51	BONATE (MG/L) AS CO3) 0 0 0	LINITY (MG/L AS CACO3) 53 53 28 43	DTOXTOE DIS- SOLVED (MG/L AS CO2) 6.1 .6 12	DIS- SOLVED (MG/L AS SO4) 19 17 16 21	RIDE- DIS- SOLVED (MG/L AS CL) 5.5 6.0 5.1	GEN- NITPATE TOTAL (MG/L AS N) .52 .09 .37	GFN- NITRITE TOTAL (MG/L AS N)	GEN+ NO2+ND3 TOTAL (MG/L AS N)
OCT 07 NOV 11 DEC 10 JAN 67 FEB 05 MAR 09 APR	80NATE (MG/L AS HC03) 60 64 37 51 42	BONATE (MG/L AS CO3)	LINITY (MG/L AS CACO3) 53 53 28 43 29 28	DTOXTDE DIS- SOLVED (MG/L AS CO2) 6.1 .6 12 1R 17	015- SOLVED (MG/L AS 504) 19 17 16 21 19	FIDE- DIS- SOLVED (MG/L AS CL) 5.5 6.0 5.1 5.0 4.0	GEN- NITPATE TOTAL (MG/L AS N) .52 .09 .37	GFN- NITRITE TOTAL (MG/L AS N)	GEN+ NO2+ND3 TOTAL (MG/L AS N)
OCT 07 NOV 11 DEC 10 JAN 07 FEB 05 MAR 09 APR 06 MAY	80NATE (MG/L AS HC03) 60 64 37 51 42 34	BONATE (MG/L AS CO3)	LINITY (MG/L AS CACO3) 53 53 28 43 29 28	DTOXTOE DIS- 50LVED (MG/L AS CO2) 6.1 .6 12 18 17 3.4	015- SOLVED (MG/L AS 504) 19 17 16 21 19 20 17	## TOP - DIS - SOLVED (MG/L AS CL) 5.5 6.0 5.1 5.0 4.0	GEN- NITPATE TOTAL (MG/L AS N) -52 .09 .37 	GFN. NITRITE TOTAL (MG/L AS N)	GEN+ NO2+NO3 TOTAL (MG/L AS N)
OCT 07 NOV 11 DEC 10 JAN 07 FEB 05 MAR 09 APR 06 MAY 05 JUN	80NATE (MG/L AS HC03) 60 64 37 51 42 34	BONATE (MG/L AS CO3)	LINITY (MG/L AS CACO3) 53 53 28 43 29 28 40	DIOXTOE DIS- 50LVED (MG/L AS CO2) 6.1 .6 12 18 17 3.4 2.5	015- SOLVED (MG/L AS 504) 19 17 16 21 19 20 17 17	RIDE- DIS- SOLVED (MG/L AS CL) 5-5 6-0 5-1 5-0 4-0 4-4	GEN- NITPATE TOTAL (MG/L AS N) .52 .09 .37	GFN. NITRITE TOTAL (MG/L AS N)	GEN+ NO2+NO3 TOTAL (MG/L AS N)
0CT 07 07 NOV 11 DEC 10 JAN 07 FEB 05 MAR 09 APR 06 MAY 05 JUN 01 JUL	80NATE (MG/L AS HCO3) 60 64 37 51 42 34 40 49	BONATE (MG/L AS CO3)	LINITY (MG/L AS CACO3) 53 53 28 43 29 28 40 49	DIOXTOE DIS- 50LVED (MG/L AS CO2) 6-1 .6 12 18 17 3-4 2-5	015- 50LVED (MG/L AS 504) 19 17 16 21 19 20 17	RIDE- DIS- SOLVED (MG/L AS CL) 5-5 6-0 5-1 5-0 4-0 4-0 4-4	GEN- NITPATE TOTAL (MG/L AS N) -52 .09 .37 	GFN- NITRITE TOTAL (MG/L AS N)	GEN. NO2+ND3 TOTAL (MG/L AS N)
OCT 07 07 NOV 11 DEC 10 JAN 07 FEB 05 MAR 06 MAP 06 MAP 01 JUN 01 JUN 12 AUG	80NATE (MG/L AS HC03) 60 64 37 51 42 34 40 49 60 71	BONATE (MG/L AS CO3)	LINITY (MG/L AS CACO3) 53 53 28 43 29 28 40 49 62	DIOXTOE DIS- 50LVED (MG/L AS CO2) 6.1 .6 12 1R 17 3.4 2.5 .1 .4	015- 50LVED (MG/L AS 504) 19 17 16 21 19 20 17 17 14 17	RIDE- DIS- SOLVED (MG/L AS CL) 5-5 6-0 5-1 5-0 4-0 4-4 2-3 4-2	GEN- NITPATE TOTAL (MG/L AS N) .52 .09 .37 .54	GFN- NITRITE TOTAL (MG/L AS N)	GEN. NO2.NO3 TOTAL (MG/L AS N)
OCT 07 NOV 11 DEC 10 JAN 67 FEB 05 MAR 09 APR 06 MAY 05 JUN 01 JUL 12	80NATE (MG/L AS HCO3) 60 64 37 51 42 34 40 49	BONATE (MG/L AS CO3)	LINITY (MG/L AS CACO3) 53 53 28 43 29 28 40 49	DIOXTOE DIS- 50LVED (MG/L AS CO2) 6-1 .6 12 18 17 3-4 2-5	015- 50LVED (MG/L AS 504) 19 17 16 21 19 20 17	RIDE- DIS- SOLVED (MG/L AS CL) 5-5 6-0 5-1 5-0 4-0 4-0 4-4	GEN- NITPATE TOTAL (MG/L AS N) -52 .09 .37 	GFN- NITRITE TOTAL (MG/L AS N)	GEN. NO2+ND3 TOTAL (MG/L AS N)

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01517500 - MILL CR NR TIOGA, PA.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	NITRO- GEN+ AMMONIA TOTAL (MG/L AS N)	NITRO- GEN. ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN. TOTAL (MG/L AS N)	PHOS- PHORUS. TOTAL (MG/L AS P)	PHOS- PHORUS. ORTHO. TOTAL (MG/L AS P)	ALGAL GROWTH POTEN- TIAL: BOTTLE TEST (MG/L)	SEDI- MENT. SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE. SUS- PENDED (T/DAY)
OCT									
07 NOV	.03	.21	•24	.76	.03	.01		10	1.2
11	.00	.17	.17	. 26	.01	.01		EO	
DEC 10	.03	.40	.43	.81	.10	.03		44	27
JAN 07									
FEB								EO	
05								EO	•-
MAR 09	.01	.16	.17	.71	.01	.01		ΕO	
APR									
06 May							.5	ΕO	
05							.1	ΕO	
JUN									
Ol JUL	.02	.21	.23	,43	.02	.01		4	•46
12								Εđ	
AUG									
10 SEP								•	. 86
07	•02	.16	.18	.20	.02	.01		ΕO	

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

OXYGEN.

SPE-

DATE	TIME	STREAM- FLOW+ INSTAN- TANEOUS (CFS)	CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN. DIS- SOLVED (MG/L)	DIS- SOLVED (PER- CENT SATUR- ATION)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L AS CACO3)	BICAR- BONATE (MG/L AS MCO3)	CAR- BONATE (MG/L AS CO3)
OCT											
06 NOV	1650	7.6	506	8.9	16.0	10.2	102	.0	.0	84	•
09 DEC	1420	-51	143	7.0	1.5	14.0	99	.1	3.0	52	•
14 JAN	1100		148	7.4	.0	14.8	101	.1	4.0	46	•
12 FEB	1150	*-	167	6.8	.0	14.0	96	1.6	5.0	67	•
08 Mar	1145		505	6.9	.0	14.6	101	.1	4.0	74	•
07 APR	0950	113	109	6,6	.5	13.8	96	.1	3.0	28	0
13 May	1030	59	135	9.0	13.5	12.5	119	.0	.0	35	•
02	1030	55	135	8.0	12.5	11.2	105	.0	5.0	46	•
09 JUL	1135	12	185	7.8	14.5	10.0	97	.1	3.0	76	0
06 AUG	1025	7.5	210	8,3	23.5	9.8	114	.0	.0	85	•
08 SEP	1030	12	155	8.1	21.5	9.4	109	.0	2.0	94	•
15	1045	11	550	8.2	15.5	10.5	164	.0	.0	94	•

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01517500 - MILL CR NR TIOGA. PA.

WATER QUALITY DATA. WATER YEAR OCTORER 1976 TO SEPTEMBER 1977

DATE	ALKA- LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS~ SOLVED (MG/L AS SO4)	CHLO+ RIDE+ DIS- SOLVED (MG/L AS CL)	NITRO- GEN. NITRATE TOTAL (MG/L AS N)	NITRO- GEN. NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN- NITRITE TOTAL (HG/L AS N)	NITRO- GEN. NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN. NOZ+NO3 TOTAL (MG/L AS N)	NITRO- GEN. NOZ+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN. AMMONIA TOTAL (MG/L AS N)
06 NOV	72	•5	17	9,3							
09.:. DEC	43	8.3	25	5.0							
14 JAN	38	2.9	18	6.8	.49		•01		.50		.00
12	55	17	16	7.0							
08	60	15	18	8.3							
O7	53	11	15	5.5	.64		.02		-66		.04
13 May	32	•1	17	5.4							••
02	36	.7	15	4.7						••	
09 JUL	65	1.7	28		.31		.01		.32		-04
D6 AUG	70	•7	15	7.5			••				
08 Sep	77	1.2	14	7.6							
15	77	.9	16	8.1		.05		.00		•05	
DATE	NITRO- GEN+ AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN. ORGANIC TOTAL (MG/L AS N)	NITRO- GEN; ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN:AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN-AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN. TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS+ DIS- SOLVFD (MG/L AS P)	PHOS- PHORUS: ORTHO. TOTAL (MG/L AS P)	SEDI- MENT. SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)
OCT	GEN. AMMONIA DIS- SOLVED (MG/L	GEN. ORGANIC TOTAL (MG/L AS N)	GEN; ORGANIC DIS- SOLVED (MG/L AS N)	GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N)	GEN. TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PMORUS+ D1S- SOLVFD (MG/L AS P)	PHORUS: ORTHO. TOTAL (MG/L AS P)	MENT. SUS- PENDED (MG/L)	MENT DIS- CHARGF. SUS- PENDED
0CT 86	GEN+ AMMONIA DIS- SOLVED (MG/L AS N)	GEN. ORGANIC TOTAL IMG/L	GEN+ ORGANIC DIS- SOLVED (MG/L	GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN.AM- MONIA + ORGANIC DIS. (MG/L AS N)	GEN. TOTAL (MG/L AS N)	PHORUS. TOTAL (MG/L AS P)	PMORUS+ D1S- SOLVFD (MG/L	PHORUS: ORTHO. TOTAL (MG/L AS P)	MENT+ SUS- PENDED (MG/L)	MENT DIS- CHARGF. SUS- PENDED
0CT 06 NOV 09 DEC	GEN+ AMMONIA DIS- SOLVED (MG/L AS N)	GEN. ORGANIC TOTAL (MG/L AS N)	GEN; ORGANIC DIS- SOLVED (MG/L AS N)	GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N)	GEN. TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS+ DIS- SOLVFD (MG/L AS P)	PHORUS: ORTHO. TOTAL (MG/L AS P)	MENT. SUS- PENDED (MG/L) FO	MENT DIS- CHARGF. SUS- PENDED
OCT 06 NOV 09	GEN+ AMMONIA DIS- SOLVED (MG/L AS N)	GENO ORGANIC TOTAL (MG/L AS N)	GEN, ORGANIC DIS- SOLVED (MG/L AS N)	GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN.AM- MONIA + ORGANIC DIS. (MG/L AS N)	GEN. TOTAL (MG/L AS N)	PHORUS. TOTAL (MG/L AS P)	PMORUS+ D1S- SOLVFD (MG/L AS P)	PHORUS: ORTHO. TOTAL (MG/L AS P)	MENT+ SUS- PENDED (MG/L)	MENT DIS- CHARGF, SUS- PENDED (T/DAY)
OCT 96 NOV 99 DEC 14 JAN 12 FEB 08	GEN- AMMONIA DIS- SOLVED (MG/L AS N)	GEN. ORGANIC TOTAL IMG/L AS N)	GEN, ORGANIC DIS- SOLVED (MG/L AS N)	GEN.AM- MONTA - OPGANIC TOTAL (MG/L AS N)	GEN.AM- MONIA + ORGANIC DIS. (MG/L AS N)	GEN. TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS. D1S- SOLVFD (MG/L AS P)	PHORUS, ORTHO. TOTAL (MG/L AS P)	MENT+ SUS- PENDED (MG/L) FO EO	MENT DIS- CHARGE, SUS- PENDED (T/DAY)
OCT 96 NOV 09 DEC 14 JAN 12 FEB 08 MAR 07	GEN- AMMONIA DIS- SOLVED (MG/L AS N)	GENO ORGANIC TOTAL (MG/L AS N)	GEN, ORGANIC DIS- SOLVED (MG/L AS N)	GEN.AM- MONTA - OPRGANIC TOTAL (MG/L AS N)	GEN.AM- MONIA - DRGANIC DIS. (MG/L AS N)	GEN. TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS• D1S- SOLVFD (MG/L AS P)	PHORUS, ORTHO. TOTAL (MG/L AS P)	MENT. SUS- PENDED (MG/L) FO EO	MENT DIS- CHARGF. SUS- PENDED (T/DAY)
OCT 06 NOV 09 DEC 14 JAN 12 FEB 08 MAR 07 APR	GEN- AMMONIA DIS- SOLVED (MG/L AS N)	GEN- ORGANIC TOTAL IMG/L AS N)	GEN, ORGANIC DIS- SOLVED (MG/L AS N)	GEN-AM- MONTA - ORGANIC TOTAL (MG/L AS N)	GEN.AM- MONIA + DRGANIC DIS. (MG/L AS N)	GEN. TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS- DIS- SOLVFD (MG/L AS P)	PHORUS, ORTHO, TOTAL (MG/L AS P)	MENT. SUS- PENDEN (MG/L) FO EO EO	MENT DIS- CHARGF, SUS- PENDED (T/DAY)
OCT 06 NOV 09 DEC 14 JAN 12 FEB 08 MAR 07 APR 13 MAY	GEN- AMMONIA DIS- SOLVED (NG/L AS N)	GEN- ORGANIC TOTAL IMG/L AS N)	GEN- ORGANIC DIS- SOLVED (MG/L AS N)	GEN-AM- MONIA - ORGANIC TOTAL (MG/L AS N)1330	GEN.AM- MONIA - ORGANIC DIS. (MG/L AS N)	GEN- TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS- DIS- SOLVFD (MG/L AS P)	PHORUS. ORTHO. TOTAL (MG/L AS P)	MENT. SUS- PENDED (MG/L) FO EO EO EO FO	MENT OIS- CHARGF. SUS- PENDED (T/DAY)
OCT 06 NOV 09 DEC 14 JAN 12 FEB 08 MAR 07 APR 13 MAY 02 JUN 09	GEN- AMMONIA DIS- SOLVED (MG/L AS N)	GEN- ORGANIC TOTAL (MG/L AS N) -13 .26	GEN- ORGANIC DIS- SOLVED (MG/L AS N)	GEN-AM- MONIA + ORGANIC TOTAL (MG/L AS N)1330	GEN.AM- MONIA + ORGANIC DIS. (MG/L AS N)	6EN- TOTAL (MG/L AS N)	PHDRUS, TOTAL (MG/L AS P) -02 .04	PHORUS- D1S- SOLVFD (MG/L AS P)	PHORUS. ORTHO. TOTAL (MG/L AS P)	MENT. SUS- PENDED (MG/L) FO EO FO FO FO FO FO FO FO FO	MENT OIS- CHARGF, SUS- PENDED (T/DAY)
OCT 06 NOV 09 DEC 14 JAN 12 FEB 08 MAR 13 APR 13 MAY 02 JUN 09 JUN 06	GEN- AMMONIA DIS- SOLVED (MG/L AS N)	GEN- ORGANIC TOTAL (MG/L AS N)	GEN, ORGANIC DIS- SOLVED (MG/L AS N)	GEN.AM-MONTA - ONGANIC TOTAL (MG/L AS N)	GEN.AM- MONIA - ORGANIC DIS. (MG/L AS N)	6EN- TOTAL (MG/L AS N)	PHDRUS, TOTAL (MG/L AS P)	PHORUS- D1S- SOLVFD (MG/L AS P)	PHORUS. ORTHO. TOTAL (MG/L AS P)	MENT. SUS- PENDEN (MG/L) FO EO FO FO FO FO FO FO FO FO	MENT DIS- CHARGF, SUS- PENDED (T/DAY)
OCT 06 NOV 09 DEC 14 JAN 12 FEB 08 MAR 07 APR 13 MAY 02 JUN 09 JUL	GEN- AMMONIA DIS- SOLVED (MG/L AS N)	GEN- ORGANIC TOTAL (MG/L AS N)	GEN, ORGANIC DIS- SOLVED (MG/L AS N)	GEN-AM- MONIA ** ORGANIC TOTAL (MG/L AS N) 133010	GEN.AM- MONIA - DROANIC DIS. (MG/L AS N)	6EN. TOTAL (MG/L AS N)639650	PHDRUS, TOTAL (MG/L AS P) 	PHORUS- D1S- SOLVFD (MG/L AS P)	PHORUS. ORTHO. TOTAL (MG/L AS P)	MENT. SUS- PENDEN (MG/L) FO EO FO FO FO FO FO FO FO FO	MENT DIS- CHARGF, SUS- PENDED (T/DAY)

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01517500 - MILL CR NR TIOGA+ PA.

WATER QUALITY DATA, WATER YEAR OCTORER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE+ CIFIC CON- DUCT- ANCE (MICRO- MHOS)		TEMPER- ATURE (DEG C)	OXYGEN. OIS- SOLVED (MG/L)	OXYGEN. DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM. FECAL. 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL. KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)
0CT 27	1120	78	140	7.9	11.0	11.6	105	67	240	57
FEB										
09 Mar	0955	£110	125	7.5	•0	14.6	100	K4		56
24 May	1155	£150	79	7.2	2.5	13.3	95	51	840	30
25	1120	153	115	8.8	16.5	11.0	115	270	120	44
28	1130	20	185	8.5	23.0	9.4	108	95	71	74
25	1215	7.4	193	8.9	21.0	10.0	111	110	150	84
AUG 24	1215	8.0	190	8.8	24.5	10.1	119	53	120	88
SEP 27	1115	8.8	190	8.6	15.0	12.0	118	K7	K19	61
	HARD- NESS+ NONCAR- BONATE (MG/L	ACIDITY TOTAL HEATED (MG/L	ACIDITY (MG/L AS	CALCIUM DIS- SOLVED (MG/L	MAGNE- SIUM, DIS- SOLVED (MG/L	SODIUM. Dis-	SODIUM	SODIUM AD- SORP- TION PATIO	POTAS- SIUM. DIS- SOLVED (MG/L	
DATE	CACO3)	AS H)	CACO3)	AS CA)	AS MG)	AS NA)	PERCENT		AS K)	
0CT 27								_		
FEB	21	.0	1.0	18	2.9	.,-	11	•5	1.9	
09 Mar	24	•0	1.0	18	2.7	3.4	11	•5	1.4	
24 MAY	14	-1	4.0	9.2	1.6		13	•5	1.4	
25 JUN	8	.0	.0	14	5.3	2.6	11	•5	1.7	
JUL 20	10	.0	.0	24	3.5		10	•5	5.5	
25 AUG	3	.0	.0	27	4.0	4.5	10	• 5	2.3	
24···	16	• 0	.0	28	4.4	4.3	9	•5	5.5	
27	0	.0	.0	16	5.1	5.0	15	. 3	2.0	
	BICAR- BONATE (MG/L AS	CAR- 90NATE (MG/L	ALKA- Linity (Mg/L AS	CARRON DIOXIDE DIS- SOLVED (MG/L	SULFATE DIS- SOLVED (MG/L	018-	NITRO- GEN+ NITRATE DIS- SOLVED (MG/L	NITRO- GEN: NITRITE DIS- SOLVED	NITRO- GEN. NOZ+NO3 DIS- SOLVED (MG/L	
DATE	HC03)	45 CO3)	CACO3)	AS CO2)	AS \$04)	AS CL)	AS NI	AS NI	AS NI	
nct										
27 FEB	44	0	36	.9	50	5.0	. 35	.00	• 35	
09	39	0	32	2.0	17	4,9	.77	.00	.77	
24	20	0	16	2.0	15	2.4	.60	.00	-60	
25 JUN	40	2	36	• 1	14	3.8	.18	.00	•18	
28 JUL	76	1	64	.4	15	6.5	.24	.01	•25	
25 AUG	91	4	81	•5	16	6.4	,01	.00	•0)	
24 SEP	78	5	72	•5	16	6.3	.00	.00	.00	
27	82	7	79	.3	16	A.5	.00	.00	.00	

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01517500 - MILL CR NR TIOGA+ PA.

WATER QUALITY DATA. WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN+ ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN-AM- MONIA + ORGANIC DIS. (MG/L AS NI	PHOS- PHORUS: DIS- SOLVED (MG/L AS P)	PHYTO- PLANK- TON+ TOTAL (CELLS PER ML)	CHLORD- PHYLL A PHYTO- PLANK- TON- UNCORR. (UG/L)	CHLORO- PHYLL B PHYTO- PLANK- TON+ UNCORR- (UG/L)	SEDI- MENT+ SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE. SUS- PENDED (T/DAY)
OCT									
27	-00	.39	. 39	.00				0	.00
FEB 09	.00	.21	.21	.00				£0	
MAR	.00		• 6 1				-		
24	.06	.41	.47	.02	82	.000	.000	29	
MAY 25	.00	.40	.40	.01	450	.000	.000	3	1.2
JUN	.00	. 40	• • •	.01	4 74	***************************************	.000	•	
28	.00	.31	. 31	.06	A70	.000	.000	•	•55
JUL							1	_	
25 AUG	.00	.12	-12	.00	880	1.55	.141	3	.04
24	.00	.26	.26	.01	380	-000	.000	E4	
SEP	•••	• 20	• 207	•••	500	••••	• 1100		
27	.03	.00	.03	.00	1700	.000	.000	4	-10

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued
01517500 MILL CR NR TIOGA. PA.
PHYTOPLANKTON ANALYSES. OCTOBER 1977 TO SEPTEMBER 1978

	PHYTUPLANK	TON AN	ALYSES.	OCTORE	R 1977 I	O SEPT	EMBER 19	78				
DATE TIME		24,78 155		25.78 120		28+78 130		25.78 215		24.78 215		27•78 115
TOTAL CELLS/ML		82		450		870		ARO		380	1	200
DIVERSITY: DIVISION .CLASS .ORDERFAMILYGRNUS		0.0 0.0 0.0 1.5		0.5 0.5 0.5 2.5 2.5		1.1 1.2 2.2 2.2		1.0 1.6 2.4 2.6		0.3 0.3 0.3 2.2 2.2		1.4 1.4 1.6 2.4 2.6
ORGANISM	CELLS /ML	PER- CENT	CFLLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER-	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAF) .CHLOROPHYCEAECHLOROCOCCALESHYDROOICTYACEAE												
PEDIASTRUM OOCYSTACEAE		-		-		-	180#	20		-		-
ANKISTRODESMUS		-		-	58	7		-		-	86	7
QUADRIGULASCENEDESMACEAE		-		-		-		-		-	100	9
CRUCIGENIA		-		_		-	59	7		_		_
SCENEDESMUS VOLVOCALFS		-		-		-	530N			-	420#	36
CHL AMYDOMONADACE AE												
CHLAMYDOMONAS		-		-	14	5		-	22	6		-
ZYGNFMATALES												
DESMIDIACFAE		_					29					_
***************************************		-		_		-	24	3		-	29	5
CHRYSOPHYTA BACILLARIOPHYCEAE CENTRALES COSCINODISCACEAE MELOSIRA		_	••	_		-	?20#	25		_		
PENNALES												
ACHNANTHACEAE				_		-						
COCCONE IS		-	32	7	43	5		-		-	43 43	:
CYMRELL ACF AF										_	7.3	•
CYMHELLA		-	110#	25	430#	50	73	Я	180#	47	190#	16
DIATOMACEAE		-		_		-		_	55	6		-
FRAGILARIACFAE												_
SYNEDRAGOMPHONEMATACEAE	14#	17	80#	18		-		-		-	14	1
GOMPHONEMA		-		-	29	3	44	5	45	12		-
MERIDIONACEAE	274					_						
NAVICULACEAE	27#	33		-		-		-		-		-
NAVICULA	41#	50	80#	1.6	29	3		-	67#	18	14	1
NITZSCHIACEAE		_		_	R7	10	44	-				
SURTRELLACEAF		_		-	H,	10		5	45	12		•
SURIRELLA		-	96#	21		-		•		-		-
CYANOPHYTA (BLUF-GREEN ALGAE) .CYANOPHYCEAECHROOCOCCALE5CHROOCOCCACFAF												
ANACYSTISHORMOGONALES		-	48	11		-		-	••	-	5300	50
OSCILLATOHIACEAF												
OSCILLATORIA		-		-	170#	20		-		•		-

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15% - ORSERVED ORGANISM: MAY NOT HAVE BEEN COUNTED! LESS THAN 1/2%

Table 24. --Water-quality data collected from September 1973 to September 1978 -- Continued

01518000 - TIOGA RIVER AT TIOGA. PA.

WATER QUALITY DATA. WATER YEAR OCTORER 1972 TO SEPTEMBER 1973

DATE	TIME	STREAM- FLOW+ INSTAN- TANEOUS (CFS)	SPE - C1FIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN: DIS- SOLVED (PER- CENT SATUR- ATION!	ACIDITY (MG/L AS CACO3)	BICAR- BONATE (MG/L AS HCO3)	CAR" BONATE (MG/L AS COT)	CARRON OTOXIDE DIS+ SOLVED (MG/L AS CO?)
SEP 06	1000	197	332	4.9	22.0	9.4	107	21	1	n	20
DATE	SULFATF DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE. DIS- SOLVEU (MG/L AS CL)	NITRO- GEN: NITRATE TOTAL (MG/L AS N)	NITRO- GEN- AMMONIA TOTAL (MG/L AS N)	NITRO- GEN+ ORGANIC TOTAL (MG/L AS N)	NITPO- GEN+AM- MONIA + ORGANIC TOTAL IMG/L AS N)	NITRO- GEN+ TOTAL (MG/L AS N)	PHOS= PHORUS• TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)	SEDI- MENT, SUS- PENDEO (MG/L)	SEDI- MENT DIS- CHARGE: SUS- PENDED (T/DAY)
SEP 06	130	10	.59	.29	.69	.98	1.6	.09	.06	93	49

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518000 - TIOGA RIVER AT TIOGA. PA.

WATER QUALITY DATA. WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN. OIS- SOLVED (MG/L)	OXYGEN. DIS- SOLVED (PER- CENT SATUR- ATION)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L AS CACO3)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACO3)
0CT 09	1530	82	294	5.0	16.5	9.8	100		25	0	0	
06	1145	190	194	5.3	4.0	12.9	98	•2	13	0	0	
DEC 11	1415	868	145	5.7	2.5	12.8	94	.1	12	7	0	
JAN B	1125	£230	213	5.8	.0	11.4	78	.5	42	2	0	
FEB	1435		160	5.7			100		12	3	0	
MAR		E200			2.5	13.6		.2	-			
13 APR	1600	699	152	5.5	2.0	13.4	97	• 2	19	16	0	
02 May	1445	1780	141	6.8	7.0	12.6	103	• 1	12	53	0	23
JUN 01	1445	413	166	6.7	16.0	9.4	95	. 1	10	14	0	15
12 JUL	1445	133	181	6.8	19.5	8.6	95	•0	11	14	0	13
17	1515	65	315	4.4	24.0	8.3	98	.4	69	0	0	0
14 SEP	1500	35	413	4.5	29.0	7.7	99	.5	24	1	0	1
14	1445	30	407	4.3	25.0	8.2	97	.7	34	1	0	0
DATE	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO+ RIDE+ DIS- SOLVED (MG/L AS CL)	NITHO- GEN+ NITRATE TOTAL (MG/L AS N)	NITRO- GEN: AMMONIA TOTAL (MG/L AS N)	NITRO- GEN+ ORGANIC TOTAL (MG/L AS N)	NITRO+ GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN+ TOTAL (MG/L AS N)	PHOS- PHORUS. TOTAL IMG/L AS P)	PHOS- PHORUS: ORTHO: TOTAL (MG/L AS P)	SEDI- MENT: SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE. SUS- PENDED (T/DAY)
oct	DIOXIDE DIS- SOLVED (MG/L AS CO2)	DIS- SOLVED (MG/L AS SO4)	RIDE. DIS- SOLVED (MG/L AS CL)	GEN+ NITRATE TOTAL (MG/L AS N)	GEN, AMMONIA TOTAL (MG/L AS N)	GEN+ ORGANIC TOTAL (MG/L AS N)	GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PHORUS: TOTAL IMG/L AS P)	PHORUS, ORTHO. TOTAL (MG/L AS P)	MENT. SUS- PENDED (MG/L)	MENT DIS- CHARGE+ SUS- PENDED (T/DAY)
0CT 09	DIOXIDE DIS- SOLVED (MG/L AS CO2)	DIS- SOLVED (MG/L AS SO4)	RIDE. DIS- SOLVED (MG/L AS CL)	GEN+ NITRATE TOTAL (MG/L AS N)	GEN, AMMONIA TOTAL (MG/L AS N)	GEN+ ORGANIC TOTAL (MG/L AS N)	GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PHORUS. TOTAL IMG/L AS P)	PHORUS, ORTHO. TOTAL (MG/L AS P)	MENT: SUS- PENDED (MG/L)	MENT DIS- CHARGE. SUS- PENDED (T/DAY)
0CT 09 NOV 06 DEC	DIOXIDE DIS- SOLVED (MG/L AS CO2)	DIS- SOLVED (MG/L AS SO4) 116 78	RIDE. DIS- SOLVED (MG/L AS CL) 8.7	GEN+ NITRATE TOTAL (MG/L AS N) .16	GEN, AMMONIA TOTAL (MG/L AS N)	GEN+ ORGANIC TOTAL (MG/L AS N) .18	GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN+ TOTAL (MG/L AS N) .37	PHORUS. TOTAL IMG/L AS P) .03	PHORUS, ORTHO. TOTAL (MG/L AS P)	MENT + SUS - PENDED (MG/L)	MENT DIS- CHARGE. SUS- PENDED (T/DAY)
OCT 09 NOV 06 DEC 11	DIOXIDE DIS- SOLVED (MG/L AS CO2)	DIS- SOLVED (MG/L AS SO4) 116 78 46	RIDE, DIS- SOLVED (MG/L AS CL) 8.7 3.0	GEN• NITRATE TOTAL (MG/L AS N) .16 .29	GEN, AMMONIA TOTAL (MG/L AS N) .03 .12	GEN• ORGANIC TOTAL (MG/L AS N) .18 .18	GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N) -21 -30	GEN+ TOTAL (MG/L AS N) .37 .59	PHORUS. TOTAL IMG/L AS P) .03	PHORUS, ORTHO. TOTAL (MG/L AS P) .02	MENT+ SUS- PENDED (MG/L)	MENT DIS- CHARGE. SUS- PENDED (T/DAY) 2.0 15
0CT 09 NOV 06 DEC	DIOXIDE DIS- SOLVED (MG/L AS CO2)	DIS- SOLVED (MG/L AS SO4) 116 78	RIDE. DIS- SOLVED (MG/L AS CL) 8.7	GEN- NITRATE TOTAL (MG/L AS N) -16 -29 -63	GEN, AMMONIA TOTAL (MG/L AS N)	GEN+ ORGANIC TOTAL (MG/L AS N) .18	GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN+ TOTAL (MG/L AS N) .37	PHORUS. TOTAL IMG/L AS P) .03	PHORUS, ORTHO. TOTAL (MG/L AS P)	MENT + SUS - PENDED (MG/L)	MENT DIS- CHARGE. SUS- PENDED (T/DAY)
OCT 09 NOV 06 DEC 11 JAN 08	DIOXIDE DIS- SOLVED (MG/L AS CO2)	DIS- SOLVED (MG/L AS SO4) 116 78 46	RIDE, DIS- SOLVED (MG/L AS CL) 8.7 3.0	GEN• NITRATE TOTAL (MG/L AS N) .16 .29	GEN, AMMONIA TOTAL (MG/L AS N) .03 .12	GEN• ORGANIC TOTAL (MG/L AS N) .18 .18	GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N) -21 -30	GEN+ TOTAL (MG/L AS N) .37 .59	PHORUS. TOTAL IMG/L AS P) .03	PHORUS, ORTHO. TOTAL (MG/L AS P) .02	MENT+ SUS- PENDED (MG/L)	MENT DIS- CHARGE. SUS- PENDED (T/DAY) 2.0 15
OCT 09 NOV 06 DEC 11 JAN 08 FEB 13	D10X1DE D15- SOLVED (MG/L AS CO2) .0 .4 22 5-1	DIS- SOLVED (MG/L AS SO4) 116 78 46	RIDE, DIS- SOLVED (MG/L AS CL) 8.7 3.0 2.1	GEN- NITRATE TOTAL (MG/L AS N) -16 -29 -63	GEN, AMMONIA TOTAL (MG/L AS N) .03 .12 .11	GENO ORGANIC TOTAL (MG/L AS N) .18 .18 .23	GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N) -21 .30 .34	GEN. TOTAL (MG/L AS N) .37 .59	PHORUS, TOTAL IMG/L AS P) .03 .03 .06	PHORUS, ORTHO. TOTAL (MG/L AS P) .02 .02	MENT. SUS- PENDED (MG/L) 9 29	MENT DIS- CHARGE. SUS- PENDED (T/DAY) 2.0 15 103 8.7
OCT 09 NOV 06 DEC 11 JAN 08 FEB 13 MAH	010×10E 015- 50LVED (MG/L AS CO2) .0 .4 22 5.1 9.6	DIS- SOLVED (MG/L AS SO4) 116 78 46 73 64	RIDE. DIS- SOLVED (MG/L AS CL) 8.7 3.0 2.1 6.3	GEN- NITHATE TOTAL (MG/L AS N) .16 .29 .63	GEN, AMMONIA TOTAL (MG/L AS N) .03 .12 .11	GEN+ ORGANIC TOTAL (MG/L AS N) .18 .18 .23	GEN+AM- MONIA ** ORGANIC TOTAL (MG/L AS N) .21 .30 .34 .33	GEN- TOTAL (MG/L AS N) .37 .59 .97	PHORUS. TOTAL (MG/L AS P) .03 .03 .06 .03	PHORUS. ORTHO. TOTAL (MG/L AS P) .02 .02 .05 .01	MENT. SUS- PENDED (MG/L) 9 29 44 14	MENT DIS- CHARGE. SUS- PENDED (T/DAY) 2.0 15 103 8.7 7.0
OCT 09 00 06 DEC 11 JAN 08 FEB 13 MAH 13 APH 02 MAY	010×10E 015- 50LVED (MG/L AS CO2) .0 .4 22 5-1 9-6 81	CIS- SOLVED (MG/L AS SO4) 116 78 46 73 64	8.7 3.0 45 CL1 8.7 3.0 2.1 6.3	GEN- NITHATE TOTAL (MG/L AS N) -16 -29 -53 -70 -80 -61	GEN, AMMONIA 107AL (MG/L AS N) .03 .12 .11 .15	GEN+ ORGANIC TOTAL (MG/L AS N) .18 .18 .23 .18	GEN-AM-MONIA - ORGANIC TOTAL (MG/L AS N) -21 -30 -34 -33 -39 -31	GEN- TOTAL (MG/L AS N) .37 .59 .97 1.0	PHORUS. TOTAL IMG/L AS P) .03 .03 .06 .03 .01	PHORUS. ORTHO. TOTAL (MG/L AS P) .02 .02 .05 .01 .01	WENT- SUS- PENDED (MG/L) 9 29 44 14	MENT DIS- CHARGE. SUS- PENDED (T/DAY) 2.0 15 103 8.7 7.0 47
OCT 09 06 DEC 11 JAN 08 FEB 13 MAH 13 APH 02 MAY 01 JUN 12	010×10E 015- 50LVED (MG/L AS CO2) .0 .4 22 5.1 9.6 81 5.8	C15- SOLVED (MG/L AS SO4) 116 78 46 73 64 44	RIDE- DIS- SOLVED (MG/L AS CL) 8.7 3.0 2.1 6.3 6.0 5.0	GEN- NITHATE TOTAL (MG/L AS N) .16 .29 .63 .70 .80 .61	GEN- AMMONIA 107AL (MG/L AS N) -03 -12 -11 -15 -13 -12	GEN- ORGANIC 10TAL (MG/L AS N) .18 .18 .23 .18 .26 .19	GEN-AM-MONIA - ORGANIC TOTAL (MG/L AS N) -21 -30 -34 -33 -39 -31 -18	GEN- TOTAL (MG/L AS N) .37 .59 .97 1.0	PHORUS. TOTAL IMG/L AS P) .03 .03 .06 .03 .01 .05	PHORUS. ORTHO. 10TAL (MG/L AS P) .02 .02 .05 .01 .01	9 29 44 14 13 25 113	MENT DIS- CHARGE, SUS- PENDED (T/DAY) 2.0 15 103 8.7 7.0 47
OCT 09 NOV 06 DEC 11 JAN 08 FEW 13 APR 02 MAY 01 JUN 12 JUN 17	DIOXIDE DIS- SOLVED (MG/L AS CO2) .0 .4 22 5.1 9.6 81 5.R	CIS- SOLVED (MG/L AS SO4) 116 78 46 73 64 44 29	RIDE- DIS- SOLVED (MG/L AS CL) 8.7 3.0 2.1 6.3 6.0 7.0	GEN- NITHATE TOTAL (MG/L AS N) -16 -29 -63 -70 -80 -61	GEN- AMMONIA 107AL (MG/L AS N) -03 -12 -11 -15 -13 -03	GEN- ORGANIC TOTAL (MG/L AS N) .18 .18 .23 .18 .26 .19	GEN-AM- MONIA . ORGANIC TOTAL (MG/L AS N) .21 .30 .34 .33 .39 .31 .18	GEN- TOTAL (MG/L AS N) .37 .59 .97 1.0 1.2 .92 1.1	PHORUS. TOTAL (MG/L AS P) .03 .04 .05 .15 .05	PHORUS. ORTHO. TOTAL (MG/L AS P) .02 .05 .01 .01 .01 .05	MENT- SUS- PENDED (MG/L) 9 29 44 14 13 25 113	MENT DISTRIBUTE OF THE PENDED OF THE PE
OCT 09 NOV 06 DEC 11 JAN 08 FEB 13 MAH 13 APH 02 MAY 01 JUN 12	DIOXIDE DIS- SOLVED (MG/L AS CO2) .0 .4 22 5.1 9.6 81 5.R 4.5	C1S- SOLVED (MG/L AS SO4) 116 78 46 73 64 44 29	RIDE- DIS- SOLVED (MG/L AS CL) 8.7 3.0 2.1 6.3 6.0 7.0 7.6	GEN- NITRATE TOTAL (MG/L AS N) -16 -29 -63 -70 -80 -61 -90 -40	.03 .12 .11 .15 .13 .12 .03	GEN- ORGANIC TOTAL (MG/L AS N) .18 .19 .23 .18 .26 .19 .15	GEN-AM-MONIA - ORGANIC TOTAL (MG/L AS N) -21 -30 -34 -33 -39 -31 -18 -32 -56	GEN- TOTAL (MG/L AS N) .37 .59 .97 1.0 1.2 .92 1.1	PHORUS- TOTAL (MG/L AS P) .03 .03 .06 .03 .01 .05 .15	PHORUS. ORTHO. TOTAL (MG/L AS P) .02 .05 .01 .01 .05 .02	9 29 44 14 13 25 113 23 17	MENT DIS- CHARGE. SUS- PENDED (T/DAY) 2.0 15 103 8.7 7.0 47 543 26 6.1

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518000 - TIOGA RIVER AT TIOGA. PA.

WATER QUALITY DATA, WATER YEAR OCTOPER 1973 TO SEPTEMBER 1974

DATE.	TIME	ALUM- INUM. TOTAL RECOV- ERABLE (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	CADMIUM FOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERAHLE (UG/L AS CR)	CORALT. TOTAL RECOV- ERABLE (UG/L AS CO)	COPPER. TOTAL RECOV- ERABLE (UG/L AS CU)	[RON+ TOTAL RECOV- FRABLE (UG/L AS FE)
FER								
13	1435							
13 APR	1000							
62 MAY	1445							
01 JUN	1445	1500	1	0	0	71	20	1700
12	1445	10	2	6	10	28	10	790
17	1515	5900	0	1	0	92	50	380
AUG 14 Sep	1500	4400	σ	ı	o	72	30	150
12	1445	7400	1	1	<10	120	40	310

DATE	IRON. DIS- SOLVED (UG/L AS FE)	LEAD. TOTAL RECOV- EPABLE (UG/L AS PR)	MANGA- NESF. TOTAL RECOV- FRARLE (UG/L AS MN)	MERCURY TOTAL RECOV- FRABLE (UG/L AS HG)	SELF- NIUM. TOTAL (UG/L AS SF)	SILVER. TOTAL RECOV- FRANCE (UG/L AS AG)	ZIMC+ TOTAL RECOV- CRARLE (UG/L AS ZN)
FEB							
13	70						
MAR							
13	900						
APR 02	9.0						
MAY	70						
01		5	1200	<.5	0	0	140
JUN							
12		4	1700	<.5	1	0	210
JUL 17		3	5960	<.5	<1	0	3100
AUG		3	,				
14		4	5200	<.5	< 2	0	710
5€P							
12		5	5700	٠.٩	2	U	900

WATER QUALITY DATA, WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975

		STREAM-	SPE- CIFIC CON-				OXYGEN+ DIS- SOLVED	ACIDITY	
		FLOW.	DUCT-			OXYGEN.	(PER-	TOTAL	ACIDITY
		INSTAN-	ANCE	PH	TEMPER-	015-	CENT	HEATED	(MG/L
	TIME	TANEOUS	(MICRO-		ATURE	SOLVED	SATUR-	(MG/L	AS
DATE		(CFS)	MHOSI	(UNITS)	(DEG C)	(MG/L)	ATION)	45 H)	CACO3)
OCT									
10	1520	48	377	4+5	16.0	9.8	98	•5	25
NOV 07	1050	194	192	6.7	A.0	11.8	99	.0	2.0
DEC		_							
09	1430	1880	105	6.9	2.0	13.8	100	.0	10
JAN	1500	785	156	5.3	.0	14.2	97	•5	11
14 FEB	1300	707	150	3.3	••	****	•	•••	• •
03	1430	300	105	4.9	.5	13.6	94	.3	20
MAR							_		
05	1415	E280	506	5.2	1.0	13.0	92	.3	27
APR						٠	98		24
01	1345	343	146	6.1	6.0	15.5	98	•1	۲•
MAY					16.5	9.4	95	•1	2.0
[4	1430	480	145	7.3	10.0	7,4	7.7	• •	
JUN 10	1500	E450	165	6.7	19.0	8.7	93	.0	6.0
JUL	1500	£ 4 30	105	0.,		3.7			
09	1100	£92	248	5.2	24.5	7.8	42	.5	7.0
AUG									
06	1345	E54	375	4.1	20.5	8.7	96	•6	29
SEP							101	.1	4.0
11	1130	E50	302	6.9	17.5	9.7	101	• 1	₹.0

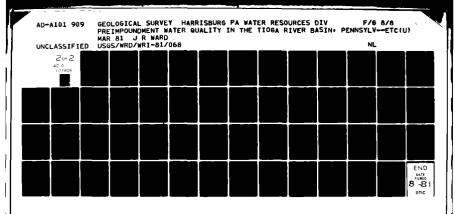


Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518000 - TIOGA RIVER AT TIOGA, PA.

WATER QUALITY DATA, WATER YEAR OCTOBER 1974 TO SEPTEMBEH 1975

DATE	BICAR- BONATE (MG/L AS HCQ3)	CAR- BONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE. DIS- SOLVED (MG/L AS CL)	NITRO- GEN, HITRATE TOTAL (MG/L AS N)	NITRO- GEN: NITRITE TOTAL (MG/L AS N)	NITHO- GEN- NO2+NO3 TOTAL IMG/L AS NI
oct	_	_	_						
10	5	0	0	101	160	9.5	.23	*-	
07 DEC	27	0	\$	8.6	63	8.0	-18		
09	14	0	17	5.8	77	3.5	.86	~~	
14···	3	0	6	24	61	5.0	.61	~~	
03	S	0	1	40	86	5.5	.61		
05	5	0	S	50	85	5.0	.90		
01	6	0	5	7.6	56	5.0	.93		
14···	17	Q	14	1.4	44	4.0	.29	.01	.30
10	18	0	13	5.7	51	4.5	1.1		
09	5	0	ı	20	99	7.5	.23		
06 SEP	Q	0	0	.0	160	12	.32	.01	.33
11	8	a	10	1.6	150	11	.16		٠.
	NITRO- GEN; AMMONIA TOTAL (MG/L	NITRO- GEN+ ORGANIC TOTAL (MG/L	NITRO- GEN•AM- MONIA + ORGANIC TOTAL (MG/L	NITRO- GEN. TOTAL (MG/L	PHDS- PHORUS, TDTAL (MG/L	PHOS- PHORUS: ORTHO. TOTAL (MG/L	SEDI- MENT. SUS- PENDED	SEDI- MENT DIS- CHARGE, SUS- PENDED	
DATE	AS NI	AS NI	AS N)	AS N)	AS P)	AS PI	(MG/L)	(T/DAY)	
0CT 10	-16	.13	.29	•52	.03	.02	EO		
07 DEC	.05	•55	.27	.45	.03	.02	14	7.3	
09	.08	.36	.44	1.3	.06	.04	65	330	
IA FER	.05	.17	•55	1.0	-04	.02	50	42	
93 PAR	.08	•55	.30	.91	.02	.01	€O		
05	.03	.10	.13	1.0	.04	•02	39	41	
01	.02	.20	•55	1.2	.02	.01	13	12	
JUN	.01	.15	.16	.46	.04	.01	33	43	
10	.03	•40	.43	1.5	.03	.02	11		
89	.05	.10	-15	. 38	.01	.00	5		
06 SEP	.16	.05	.21	.54	.04	.01	EO		
11	.14	.09	.23	.39	.02	.02	EO		

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518000 - TIOGA RIVEP AT TIOGA. Pa.

MATER QUALITY DATA. MATER YEAR OCTORER 1974 TO SEPTEMBER 1975

DATE	TIME	ALUM+ INUM+ TOTAL RECOV- ERABLE (UG/L AS AL)	ALUM- INUM- DIS- SOLVED (UG/L AS AL)	APSENIC TOTAL (US/L AS AS)	APSENIC DIS- SOLVED (UG/L AS AS)	CADMIUM TOTAL RECOV- EPARLE IUG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CO)	CHPO- MJUM. TOTAL RECOV- FRABLE (UG/L AS CR)	CHRO- MIUM. DIS- SOLVFO (UG/L AS CR)
OCT	1520	4900		<1	•-	3		o	
NOV									
OFC	1050	960		0		-	-*	0	
09 Jan	1430	1600		1		0		0	
14 FFB	1500	5000		1		0		10	
03 MAR	1430	2700		1		0		0	
85	1415		1400		0		1		0
APR 01	1345		40		1		0		0
MAY 14	1430		40		0		0		<10
JUN 10	1500		40		0		0		n
JUL 09	1100		270		0		0		0
AUG									
06 SEP	1345		4000					••	
11	1130		60		~-				
NATE	COBALT. TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT+ DIS- SOLVED (UG/L AS CO)	COPPER+ TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER. DIS- SOLVED (UG/L AS (U)	IRON+ TOTAL RECOV- FRABLE (UG/L AS FE)	IRON. DIS- SOLVED (HG/L AS FF)	LEAD. TOTAL RECOV- ERABLE (UG/L AS PR)	LEAD. DIS- SOLVED (NG/L AS PB)	MANGA- NFSE + TOTAL RECOV- ERABLE (UG/L AS MN)
ост	TOTAL RECOV- ERABLE (UG/L AS CO)	DIS- SOLVED (UG/L AS CO)	TOTAL RECOV- ERABLE (UG/L AS CU)	DIS- SOLVED (UG/L	TOTAL RECOV- FRABLE (UG/L AS FE)	nIS- SOLVEN (HG/L	TOTAL RECOV- ERABLE (UG/L	UIS- SULVED	NESE+ TOTAL RECOV- ERABLE IUG/L
0CT 10	TOTAL RECOV- ERABLE (UG/L AS CO)	DIS- SOLVED (UG/L AS CO)	TOTAL RECOV- ERABLE (UG/L AS CI))	DIS- SOLVED (UG/L AS (U)	TOTAL RECOV- FRABLE (UG/L AS FE)	DIS- SOLVED (HG/L AS FF)	TOTAL RECOV~ ERABLE (UG/L AS PR)	NIS- SOLVED (NG/L AS PB)	NFSE+ TOTAL RECOV- ERABLE (UG/L AS MN)
0CT 10 NOV 87	TOTAL RECOV- ERABLE (UG/L AS CO)	DIS- SOLVED (UG/L AS CO)	TOTAL RECOV- ERABLE (UG/L AS CU)	DIS- SOLVED (UG/L AS (U)	TOTAL RECOV- FRABLE (UG/L AS FE) 720	DIS- SOLVED (HG/L AS FF)	TOTAL RECOV- ERABLE (UG/L AS PR)	NIS- SOLVED (NG/L AS PB)	NESE + TOTAL RECOV- ERABLE (UG/L AS MN) 4800
OCT 10 NOV 07	TOTAL RECOV- ERABLE (UG/L AS CO)	DIS- SOLVED (UG/L AS CO)	TOTAL RECOV- ERABLE (UG/L AS CI))	DIS- SOLVED (UG/L AS CU)	TOTAL RECOV- FRABLE (UG/L AS FE) 720 770 2600	DIS- SOLVED (HG/L AS FF)	TOTAL RECOV- ERABLE (UG/L AS PR)	NIS- SOLVED (NG/L AS PB)	NFSE. TOTAL RECOV- ERABLE (UG/L AS MN) 4900 1100
OCT 10 NOV 07 DEC	TOTAL RECOV- ERABLE (UG/L AS CO)	DIS- SOLVED (UG/L AS CO)	TOTAL RECOV- ERABLE (UG/L AS CU)	DIS- SOLVED (UG/L AS (U)	TOTAL RECOV- FRABLE (UG/L AS FE) 720 770 2600	DIS- SOLVED (HG/L AS FF)	TOTAL RECOV- ERABLE (UG/L AS PR)	NIS- SOLVED (NOVL AS PB)	NFSE . TOTAL RECOV- ERABLE (UG/L AS MN) 4900 1100
OCT 10 NOV 07 DEC 09 JAN 14 FFR	TOTAL RECOV- ERABLE (UG/L AS CO)	DIS- SOLVED (UG/L AS CO)	TOTAL RECOV- ERABLE (UG/L AS CI))	DIS- SOLVED (UG/L AS CU)	TOTAL RECOV- FRABLE (UG/L AS FE) 720 770 2600	DIS- SOLVED (HG/L AS FF)	TOTAL RECOV- ERABLE (UG/L AS PR)	DIS- SOLVED (NIGVL AS PB)	NFSE , TOTAL RECOV = ERABLE (UG/L AS MN) 4800 1100 450 1400 2300
DCT 10 NOV 07 DEC 09 JAN 14 FFR 03 MAR	TOTAL RECOV- ERABLE (UG/L AS CO)	DIS- SOLVED (UG/L AS CO)	TOTAL RECOV- ERABLE (UG/L AS CI) 20 0	DIS- SOLVED (UG/L AS CU)	TOTAL RECOV- FRABLE (UG/L AS FE) 720 770 2600	DIS- SOLVEN (NG/L AS FF)	TOTAL RECOV- ERABLE (UG/L AS PR)	N15- SOLVED (NI6/L AS PB)	NFSE . TOTAL RECOV- ERABLE (UG/L AS MN) 4900 1100
OCT 10 NOV 07 DEC 19 JAN 14 FFR 03 MAR 05	TOTAL RECOV- PERABLE (UG/L AS CO) 3 20 8 28	DIS- SOLVED (UG/L AS CO)	TOTAL RECOV- ERABLE (UG/L AS CII) 20 0 20	DIS- SOLVED (UG/L AS CU)	707AL RECOV- FRABLE (UG/L AS FE) 720 770 2600 2200	DIS- SOLVEN (NG/L AS FF)	TOTAL RECOVERABLE (UG/L AS PR)	DIS- SOLVED (NIGVL AS PB)	NFSE , TOTAL RECOV = ERABLE (UG/L AS MN) 4800 1100 450 1400 2300
DCT 10 NOV 07 DEC 09 JAN 14 FFR 03 MAR 05 APR 01	TOTAL RECOVERABLE (UG/L AS CO)	OIS- SOLVED (UG/L AS CO)	TOTAL RECOV- ERABLE (UG/L AS CH) 20 0 0 20 20	DIS- SOLVED (UG/L AS CU)	701AL RECOV- FRANLE (UG/L AS FE) 720 770 2600 2200	DIS- SOLVEN (HG/L AS FF)	TOTAL RECOVERABLE (UG/L AS PR)	N15- SOLVED (NI6/L AS PB)	NFSE , TOTAL RECOV = ERABLE (UG/L AS MN) 4800 1100 450 1400 2300
OCT 10 NOV 07 DEC 09 JAN 14 FFR 03 MAR 01 APR 01 APR	TOTAL RECOVERABLE (UG/L AS CO)	OIS- SOLVED (UG/L AS CO)	TOTAL RECOV- ERABLE (UG/L AS CII) 20 0 20 20	DIS- SOLVED (UG/L AS CU) 10	701AL RECOV- FRABLE (UG/L AS FE) 720 770 2600 2700	NIS- SOLVEN (116/L AS FF)	TOTAL RECOVERABLE (UG/L AS PA)	N15- SOLVED (N67L AS PB)	NFSE , TOTAL RECOV = ERABLE (UG/L AS MN) 4800 1100 450 1400 2300
OCT 10 NOV 07 DEC 09 JAN 14 FFR 03 MAR 05 APR 01 MAY 14 JU	TOTAL RECOV- PRABLE (UG/L AS CO) 3 20 8 28 38	015- SOLVED (UG/L AS CO)	TOTAL RECOV- ERABLE (UG/L AS CII) 20 0 20 20	DIS- SOLVED (UG/L AS CU)	70TAL RECOV- FRABLE (UG/L AS FE) 720 770 2600 2700 1800	NIS- SOLVFN (116/L AS FF)	TOTAL RECOVERABLE (UG/L AS PR) 2 0 4 1 2	NIS- SOLVED (NIS/L AS PB)	NFSE , TOTAL RECOV = ERABLE (UG/L AS MN) 4800 1100 450 1400 2300
OCT 10 NOV 07 DEC 09 JAN 14 FFR 03 MAR 01 APR 01 APR 14 JUN 10 JUN	TOTAL RECOVERABLE (UG/L AS CO) 3 20 8 28 38	OIS- SOLVED (UG/L AS CO)	TOTAL RECOVERABLE (UG/L AS CII) 20 0 20 20	DIS- SOLVED (UG/L AS CU) 10 0	701AL RECOPY- FRABLE (UG/L AS FE) 720 770 2600 2200 1800	NIS- SOLVEN (116/L AS FF)	TOTAL RECOVERABLE (UG/L AS PR)	NIS- SOLVED (NIC/L AS PB)	NFSE , TOTAL RECOV = ERABLE (UG/L AS MN) 4800 1100 450 1400 2300

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518000 - TIOGA RIVER AT TIOGA. PA.

WATER QUALITY DATA, WATER YEAR OCTORER 1974 TO SEPTEMBER 1975

DATE	MANGA- NESE+ DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	SELF- NIUM: TOTAL (UG/L AS SE)	SELF- NIUM. DIS- SOLVED (UG/L AS SE)	SILVER. TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER. DIS- SOLVED (UG/L AS AG)	7INC+ TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC+ DIS- SOLVED (UG/L AS ZN)
OCT									
10		<.5		<>		0		750	
07		<.5		n		0		190	
09 PAL		<,5		0		0		60	
14 FF9		<.5		۶		0		140	
n3		<.5		0		0		300	
MAR N5 APR	1600		<.5		1		n		260
01 MAY	1300		<,5		0		n		160
34 JIIN	810		<.5		1		0		70
10	1200		<.5		1		0		120
19	2900		۷,5		0		0		620
06 SEP	5100								590
11	3400								440

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

			SPE- CIFIC				OXYGEN. DIS-		
		STREAM-	CON-				SOLVED	ACIDITY	
		FLOW.	DUCT-			OXYGEN.	(PER-	TOTAL	ACIDITY (MG/L
		INSTAN-	ANCE	PH	TEMPER-	DIS-	CENT	HEATED (MG/L	
	TIME	TANEOUS	INICRO-		ATURE	SOLVED (MG/L)	SATUR- ATION)	AS H)	AS CACO3)
DATE		(CFS)	MHOS)	(UNITS)	(DEG C)	(MO/L)	ATTON	#2 H1	CACUS
OCT									
07	1130	283	259	6.0	13.0	10.2	96	• 2	10
NOV									
11	1120	355	173	6,9	9.5	11.0	96	-1	4.0
DEC							94	.1	6.0
10	1330	998	119	6.4	2.0	13.0	94	• •	0.0
JAN	1025		220	5.7	.0	13.4	92	• 2	15
07 FE8	1035	€200	539	347	••		,.	•••	••
05	0900	£230	180	6.2	.0	14.0	96	.2	9.0
MAR	0900	6230	100	0.2	•••				
09	0930	486	159	6.1	.0	13.6	93	.0	5.0
APR	•,	400							
06	0900	425	157	6.4	5.0	11.9	93	•1	15
MAY									_
06	1030	181	185	6.6	14.5	9.6	93	.1	7.0
JUN								_	
02	0805	293	177	6.7	13.0	10.0	94	.1	4.0
JUL							89	-	7.0
13	1030	134	243	5.8	15.5	9.0	67	.5	7.0
AUG						9.2	95	.1	6.0
11	0815	301	179	6.3	17.0	7.2	70	• •	5.0
SEP 08	0745	45	429	4.8	16.0	9.0	90	.5	27
100	0/93	40	427	7.0	10.0	,,,,	,,		- '

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518000 - TiOGA RIVER AT TIOGA. PA.

WATER QUALITY DATA. WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	BICAR- BONATE (MG/L AS HCO3)	CAR- L BONATE (MG/L AS CO3)	ALKA- DI INITY (MG/L S AS (DIS- OLVED MG/L	ULFATE DIS- SOLVED (MG/L IS SO4)	CHLO- RIDE. DIS- SOLVED (MG/L AS CL)	NITRO- GEN. NITRATE TOTAL (MG/L AS N)	NITRO- GEN+ NITRITE TOTAL (MG/L AS N)	NITRO- GEN+ ND2+ND3 TOTAL (MG/L AS N)
OCT 07	4	0	5	6.4	100	5.0	.68		
NOV 11	16	0	14	3.6	51	5.0	.29		
DEC 10	55	0	15	14	29	4.9	.39	.01	•40
JAN 07 Feb	4	0	4	13	120	5.0			
05 MAR	8	0	6	5.1	63	7.0			
09	6	0	5	7.6	61	4.0	.97		
06 May	16	0	•	10	47	6.0		~-	
JUN	15	0	11	6.0	61	3,2			
JUL 02•••	24	0	17	7.7	53	5.3	.37	-01	.38
13 AUG	•	0	3	10	98	4,9			••
11 SEP	6	0	5	4.8	68	4.0			
08	2	0	1	51	180	6.9	.35	.01	.36
DATE	NITRO- GEN. AMMONI/ TOTAL (MG/L AS N)	GEN,	NITRO- GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS. TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)			
OCT									
NOV			.29	•97	.04	•0			
11 DEC 10			.22 .44	.51	.03	.0:			
JAN 07					•10				
FER 05						_			
MAR 09		.25	•30	1.3	.02	.0			
APR 06		. 					- 36	41	
96		. 				-	- 10	4.9	
JUN 02 JUL		.21	.25	.63	.05	.0	1 19	15	
13						-	- 14	5.1	
ll SEP						-	- 19	15	
08	19	, 05	.20	•56	.02	•0	1 6	.73	
TAO	TIM	ALUM- INUM- OIS- SOLVE F (UG/L AS AL	TRON+ DIS- D SOLVED TUG/L	MANGA- NFSF+ DIS- SOLVF (UG/L AS MN	7 INC. DIS- D SOLVE (UG/L	D			
OCT	τ	AD AL	/ AD (5)	lum cu	, A3 (N	•			
#7.	113	n 25	0 190	340	n 34	n			
11.	112	n 3	0 10	140	0 16	0			

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518000 - TIOGA RIVER AT TIOGA. PA.

WATER QUALITY DATA. WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	STREAM- FLOW: INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN+ DIS+ SOLVED (MG/L)	OXYGEN. DIS- SOLVED (PER- CENT SATUR- ATION)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L AS CACO3)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)
OCT			391	5.4	14.0	9.8	94	.2	11	3	0
07 NOV	0925	43						.2	9.0	5	0
10 DEC	0825	209	209	6.0	.5	13.2	92				
14	1330	E170	199	6.5	.0	13.8	95	.1	5.0	17	0
JAN 12	1420	E76	286	5.4	.0	12.8	88	.5	26	6	0
FEB 08	1350	E49	339	5.2	.0	13.0	A9	.7	33	5	0
MAR 07	1225	605	139	5.4	1.0	13.6	96	.7	A • 0	2	0
APR		281	190	5.8	14.5	10,3	100	.7	8.0	4	0
13 May	1345	-					95	.2	A.0	5	0
NUL	1305	259	183	6.0	13.5	10.0				,	0
09	1730	84	304	5.2	13.0	10.2	96	.3	14	-	
06	1405	79	350	4.8	26.0	7.8	95	.6	30	1	0
AUG 08	1535	68	270	7.2	24.5	9.1	116	.0	5.0	7	0
SEP 15	1445	90	320	7.3	18.5	9,2	97	.1	4.0	44	0
		CARBON		CHLO-	NITRO-	NITRO- GEN:	NITRO-	NITRO- GEN•	NITRO-	NITRO- GEN•	NITHO-
	ALKA-	DIOXIDE	SULFATE	RIDE .	GEN.	NITRATE	GEN.	NITRITE	GFN.	E04+204	GEN.
	LINITY	D15-	DIS-	DIS-	NITRATE	015-	NITRITE	015-	N02+N03	018-	AMMONIA
	(MG/L	SOLVED	SOLVED	SOLVED	TOTAL	SOLVED	TOTAL	SOLVED	TOTAL	SOLVED	TOTAL
	AS	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L
DATE	CAC03)	AS CO2)	AS 504)	AS CL)	AS N)	AS NI	AS N)	AS N)	AS N)	AS N)	AS N)
OCT											
07	2	19	150	9.6							
NOV 10	4	8.0	70	5.4							
DEC 14	14	8.6	64	8.3	.60		•01		.61		.07
JAN 12	5	38	120	9.2							
FEB											
08 Mar	•	50	130	11							
07	2	13	45	4.8	.71		•01		.72		.06
13	3	10	66	5.9							
02	4	8.0	65	5.2							
JUN 09	2	20	120	8.6	.32		•01		.33		.00
JUL 06	1	25	140	7.7							
AUG 08	6	.7	130	11							
SEP											
15	36	3.5	91	11		. 30		.00		. 10	

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518000 - TIOGA RIVER AT TIOGA. PA.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	NITRO- GEN: AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- BEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN. ORGANIC DIS- SOLVED (MG/L AS N)	NITRD- GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NSTRO- GEN+AM- MONIA + ORGANIC DIS- (MG/L AS N)	NITRO- GEN. TOTAL IMG/L AS N)	PHOS- PHORUS+ TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO. TOTAL (MG/L AS P)	SEDI- MENT. SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE. SUS- PENDED (T/DAY)
ост											
97	**				~~				~-	14	1.6
10									**	15	8.5
DEC										• •	3.7
14		.16		.23		.84	.03		.01	14	
JAN											
15										6	
FEB 08											
MAR											
97		.13		-19		.91	.03		.01	5.5	36
APR										13	9.9
13					~-					.,	,,,
02					~-					12	8.4
JUN											
09		.10		-10	~-	.43	.01		.00	45	10
JUL 06										9	1.9
AUG											
08										17	3.1
SEP					.47		~-	.01		81	20
15	.08		.39		• • 7		~-	.01		61	24

WATER QUALITY DATA, WATER YEAR OCTORER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM- FLOW: INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN. DIS- SOLVED (MG/L)	DIYGEN. DIS- SOLVED IPER- CENT SATUR- ATION)	COLI- FORM, FECAL. 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL: RF AGAR (COLS: PER 100 ML)	HARD- NESS (MG/L AS CACO3)
27	1400	550	195	6.9	12.5	10.7	100	K11	K25	74
FEB	1400	330	.,,							
09	1340	350	160	6.5	.0	14.1	97	ħ		71
MAR 24	1540	4220	110	6.7	4.5	12.7	98	1	200	38
MAY 25	1615	820	140	7.5	18.0	10.4	109	170	65	54
JUN 28	1645	149	270	7.1	24.5	8.5	101		KIO	110
JUL 25	1815	66	360	7.2	55.0	9.4	107	K4	K5	150
84	1710	58	360	6.1	25.5	8.8	106	<1	<1	160
SEP	4/10	0.,	-							
28	1300	90	305	6.2	15.5	10.4	103	<1	K11	140

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518000 - TIOGA RIVER AT TIOGA. PA.

WATER QUALITY DATA. WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	MARD- NESS. NONCAR- BONATE (MG/L CACO3)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L AS CACO3)	CALCTUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM+ DIS- SOLVED (MG/L AS MG)	SODIUM. DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM. DIS- SOLVED (MG/L AS K)
0CT 27 FEB	54	.?	8.0	50	5.8	3.4	9	•2	1.4
09	57	•5	8.0	19	5.6	4.0	11	•5	1.4
MAR 24	30	.2	8.0	10	3.2	2.4	12	•5	1.3
25	23	.1	4.0	16	3.4	3.4	12	• 2	1.6
2A	91	.1	4.0	27	9.4	5.1	9	• 2	2.1
JUL 25	130	•1	3.0	36	14	6.8	9	•5	2.4
AUG 24	160	•1	7.0	38	17	6.5	8	.2	2.4
SEP 28	130	•5	10	31	16	5.4	7	.2	1.9
DATE	BICAR- BONATE (MG/L AS HCO3)	CAH- BONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACO3)	CARRON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE. DIS- SOLVED (MG/L AS CL)	NITRO- GEN: NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN+ NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN+ NO2+NO3 DIS- SOLVED (MG/L AS N)
27	24	n	20	4.8	54	4.3	.40	.00	•40
FE8 09	17	0	14	A.6	50	5.3	.69	.00	.69
MAR 24	10	0	8	3.2	32	2.5	.53	.00	•53
MAY 25	38	0	31	1.7	27	3.9	.18	.00	•1A
JUN 28	23	0	19	2.9	88	7.7	.38	.01	.39
JUL 25 AUG	23	0	19	7.3	130	8.9	.55	.00	•22
24 SEP	6	0	5	7.6	150	8.1	. 36	.00	.36
28	15	0	10	17	360	.4	•59	.01	•30
DATE	NITRO- GEN. AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN. ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS, (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHYTO- PLANK- TON. TOTAL (CELLS PFR ML)	CHLORO- PHYLL A PHYTO- PLANK- TON. UNCORR.	CHLORO- PHYLL B PHYTO- PLANK- TON. UNCOPR.	SEDI- MENT. SUS- PENDED	SEDI- MENT DIS- CHARGE, SUS- PENDED
OCT	A- 14)	43 M/	43 M)	A3 F1	PER ML)	(UG/L)	(UG/L)	(MG/L)	(T/DAY)
27	.03	.23	•56	.00				13	19
FEB 09	.07	.27	•34	.00				E10	
MAR 24 May	•06	.35	.41	.00	85	.000	.000	70	798
25 JUN	-01	.42	.43	.01	460	.000	.000	25	55
28	•02	•17	.19	.00	1200	2.24	.000	R	3.2
25 AUG	.02	-14	.16	.00	2300	.000	.000	3	•53
24 SFP	•02	.17	•19	.01	1600	.000	.000	11	2.0
28	.13	•12	.25	.00	110	.000	.000	11	2.7

Table 24.--Water-quality data collected from September 1973 to September 1978 -- Continued

01518000 TIOGA RIVER AT TIOGA, PA. PHYTOPLANKTON ANALYSES, OCTORER 1977 TO SEPTEMPER 197A

DATE TIME		24.78 540		25.78 615		28,78 645		25.78 815		74.78 710		28,78 300
TOTAL CELLS/ML		82		160	1	200	5	300	1	500	1	110
DIVERSITY: DIVISION .CLASSORDERFAMILYGFNUS		0.0 0.0 0.0 1.8	i	1.8 1.8 2.1 2.8 3.0		1.4 1.4 1.4 2.3 2.3		1.6 1.6 1.8 2.2 2.2		0.6 0.6 0.7 0.7		1.2 1.2 2.6 2.6
ORGANISM	CELLS /ML	PFR- CENT	CFLLS /ML	PFR- CENT	CELLS /ML	PER- CENT	CFLLS /ML	PFR- CFNT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE) .CHLOROPHYCEAECHLOROCOCCALESOOCYSTACEAE												
ANKISTRODESMUS		-	16	3	45 	-	36	2		-		=
SCENEDESMACFAESCENEDESMUSTETRASTRUM		-	64	14		-	590	13		-	55#	50
VOLVOCALESCHLAMYDOMONADACEAECHLAMYDOMONAS		-	32	7			110	4	д9	5		_
CHRYSOPHYTA .BACILLARIOPHYCFAE CENTRALES COSCINODISCACEAF				·								
CYCLOTFLLAPENNALES		-		-		•	36	?		-		-
ACHNANTHACEAEACHNANTHES		-		-	540#	44	570#	25	45	3	34#	30
CYMBELLACEAE CYMBELLA FRAGILARIACEAE		-	48	10	45	•	71	3		-	11	10
SYNEDRAGOMPHONFMATACÉAE		-		-	4 5	•		-		•		-
GOMPHONEMAMERIDIONACEAE	41#	50	16 16	3		-		-	55	1 -		-
MERIDIONNAVICULACFAENAVICULA	14#	17	130#	_	130	11	71	3	22	1	11	10
NITZSCHIACEAE		17		-	55	5		-		-	11	10
SURIRELLACEAE	14#	17		-		-	••	-		-	11	10
CRYPTOPHYTA (CRYPTOMONADS) .CRYPTOPHYCEAECRYPTOMONADALESCRYPTOTOMONADACEAECRYPTOMONAS		_		-	25	5	••	-		-		-
CYANOPHYTA (HLUE-GREEN ALGAE) .CYANOPHYCEAE .CHROCCOCCALESCHROCCOCCACFAF												
ANACYSTISHORHOGONALES		-	80#	17		-		•		-		-
OSCILLATORIACEAE		-		-	340#	27	1100#	47	1500#	89		-
EUGLENOPHYTA (EUGLENOIDS) .EUGLENOPHYCEAEEUGLENALESEUGLENACEAE												
EUGLENA TRACHELOMONAS		-	32 32	7 7	45	<u>+</u>	36	-		:	11	10

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
- OBSERVED ORGANISM: MAY NOT HAVE REEN COUNTED! LESS THAN 1/2%

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518400 - CROOKED CREEK AT MIDDLEBURY CENTER. PA.

WATER QUALITY DATA, WATER YEAR OCTOBER 1972 TO SEPTEMBER 1973

	DATE		STREAM- FLOW. Instan-	SPE- CIFIC CON- DUCT- ANCE MICRO- MHOS) (TEMPER- ATURE (DEG C)	OXYGEN. DIS- SOLVED (MG/L)		AS	CAR- L BONATE (MB/L AS CO3)	ALKA- D INITY (MG/L AS	CARBON IOXIDE DIS- SOLVED (MB/L S CO2)
	SEP 05	0915	24	206	7.5	22.5	11.4	130	89	0	61	4.5
	DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	RIDE. DIS- N SOLVED (MG/L	GEN. ITRATE A TOTAL (MG/L	NITRO- GEN. HMONIA TOTAL (MG/L AS N)	NITRO- GEN; Dreanic Total (Mg/L AS N)	NITRO- GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN. TOTAL (MG/L AS N)	PHOS- PHORUS+ TOTAL (MG/L AS P)	PHOS- PHORUS. ORTHO. TOTAL (MG/L AS P)	SEDI- MENT, C SUS- PENDED	SEDI- MENT DIS- HARGE. SUS- PENDED T/DAY)
	SEP 05	17	8.9	.29	•55	•32	.54	.83	.04	.02	8	•52
			WATER Q	UALITY DA	TA. WATE	R YEAR O	CTORER 197	3 TO SEPT	EMRER 197	•		
DATE	TIME	STREAM FLOW+ INSTAN TANEOU (CFS)	DUCT-	PH (UNITS)	TEMPER ATURE (DEG C	SOLVE	- CENT FD SATUR	D ACIDIT TOTAL HEATED - (MG/L	ACIDIT	(MG/L AS	CAR- RONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACO3)
OCT 10	0930	16	225	7.2	14.	5 9.	.A 9	5 -		- 105	. 0	61
07 DEC	0820	39	179	7.2	3.	5 12	.2 9.	2.	0 -	- 74	. 0	68
12	0845	146	141	7.1	2.	0 13	.0 9	٠.	0 -	- 44	• 0	59
09	1549	· -	- 165	6.2	•	0 13	.8 9	٠ .	1 -	- 55	. 0	39
14	1715		- 145	6.6	•	5 14	.5 10	1 .	1 -	- 50	0	47
15	. 0900	69	130	7.4	•'	5 13.	. 4 9	3.	1 -	- 36	0	41
04		453	93	7.2	9.	5 10.	.8 9	٠ .	0 -	- 25	0	25
03		50 50	151		9.	5 10.	.9 12		1 -	- 57		10
JUL.					14.		-	·			_	48
18					25.							69
16	. 0830	3.	3 221	7.5	18.	7.	.0 7	• .	0 -	- 92	0	73
DATE	CARBO DIOXIO DIS- SOLVE (MG/L AS CO2	DE SULFAT DIS- ED SOLVE (MG/L	DIS- D SOLVED (MG/L	(MG/L	NITRO GEN. AMMONI TOTAL (MG/L AS N)	GEN	MONIA IC ORGANI L TOTAL L (MG/L	- • NITRO C GEN•	- PHOS- PHORUS Total (MG/L AS P)	PHOS- PHORUS: ORTHO: TOTAL (MG/L AS P)		SEDI- MENT DIS- CHARGE- SUS- PENDED (T/DAY)
10	. 11	15	12	-14	• 0	5 .1	12 .1	7 .3	1 .0	3 .01	. 14	.60
NOV 07	. ,	5 20	8.0	.29	.0	6 .1	18 .2	4 .5	3 ,0	2 .02	. 3	. 32
12	. 5.	.6 24	2.5	.6A	- 0	9 .1	18 .2	7 .9	5 .1	1 .06	E0	
09 FEB	. 56	55	6.2	1.5	.0	7 .:	28 .3	5 1.6	.0	2 .01	6	
14	. 20	18	7.0	.90	. 0	1 .	30 .3	7 1.3	.0	3 .01	•	
15	. 2	.4 14	5.9	.70	.0	5 .	18 .2	3 .9	3 .0	1 -01	E O	
04	. 2.	.5 17	3.0	.50	• 0	3 .	50 .5	3 1.0	.0	9 .04	68	83
03 JUN	. 5	.A 20	5.5	.20	•1	1 .	20 .3	1 .5	1 .0	.01	1	.13
JUL	. 6.	7 19	7.5	.50	•2		22 .4	5 .9	5 .3	h .35	6	.13
18	•	.4 24	7.4	•1•	•1	3 .1	19 .3	۰.4	6 .0	3 .01	E O	
16	• 4,	.7 17	9.0	.11	•1	3 .	.3	6 .4	7 .0	.06	6	.05

.05

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518400 - CROOKED CREEK AT MIDDLEBURY CENTER. PA.

WATER QUALITY DATA. WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

	W#16	M GOMET.	5-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1						
			SPE-				OXYGEN+		
			CIFIC				DIS-		
							SOLVED	ACIDITY	
		STREAM-	CON-			DXYGEN.	IPER-	TOTAL	ACIDITY
		FLOW.	DUCT-			DIS-	CENT	HEATED	(MG/L
		INSTAN-	ANCE	PH	TEMPER-		SATUR-	(MG/L	A5
	TIME	TANEOUS	(MICRO-		ATURE	SOLVED		AS H)	CACO31
DATE		(CFS)	MHOS	(UNITS)	(DEG C)	(MG/L)	ATTON)	AS MI	CRCUST
APR									3.0
06	1000		135	6.7	4.5	13.4	104		3.0
MAY								_	4.0
06	0830	32	158	7.3	11.5	9.4	86	• 5	4.0
JUN								_	
01	1645	157	134	A.1	15.5	9.7	96	•5	6.0
JUL									4.4
13	0840	50	214	7.4	16.0	7.8	78	-1	6.0
AUG									
10	1550	20	198	7.7	20.0	8.8	96	.0	2.0
SEP								_	_
07	1625	4.3	239	8.5	19.0	11.0	117	•0	•0
								NITRO-	NITRO-
				CARRON		CHLO-	NITRO-		GEN.
	BICAR-		ALKA-	DIOXIDE	SULFATE	RIDE.	GEN.	GFN:	
	BONATE	CAR-	LINITY	015-	DIS-	DIS-	NITRATE	NITRITE	N02+N03
	(MG/L	BONATE	(MG/L	SOLVED	SOLVED	SOLVED	TOTAL	TOTAL	TOTAL
	AS	(MG/L	AS	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L
DATE	HCQ3)	45 CO31	CACO31	AS CO2)	AS S04)	AS CL)	AS NI	AS NI	AS NI
APR			35						
06			3,						
MAY		0	51	6.1	16	4.6			
06	76	U	21	****	••				
JUN		0	45	.7	14	4.3	.21	01	• 22
01	53	0	45	• '		•••			
JUL		0	70	5.5	18	6.6			
13	86	U	70	7.0	40				
AUG		_		3.0	18	8.8			
10	93	0	76	5 · V	40	0.0			
SEP				_	22	11	.02	.02	.04
07	100	1	83	•5	er	•••	• 112	•••	
							ALGAL		SEDI-
			NITRO- GEN.AM-			PHOS-	GROWTH		MENT
	NITRO-	NITRO-		NITPO-	PHOS-	PHORUS.	POTEN-	SEDI-	015-
	GEN. `	GEN.	MONIA .		PHORUS.	ORTHO.	TIAL .	MENT.	CHARGE .
	A I HOMHA	ORGANIC	ORGANIC	GEN.		TOTAL	BOTTLE	SUS-	SUS-
	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	(MG/L	TEST	PENDED	PENDED
	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L		(MG/L)	(MG/L)	(T/DAY)
DATE	AS N)	AS N)	AS N)	AS N)	AS P)	AS P)	(MG/L/	19967	***********
APR							7		
96							• '		
MAY							-	5	.43
06							2	,	• • 3
JUN						_		. 5	2.1
01	.01	.24	.25	47	.05	• • • • •			e.1
JUL	30.		-						
13								· E0	
AUG									
10								- Ε0	
SEP								_	
	.03	.27	.30	.34	. 03	.01		. 5	.06
07		• • • •	•5•	3					

Table 24. -- Water-quality data collected from September 1973 to September 1978--Continued 01518400 - CROOKED CHEEK AT MIDDLERURY CENTER. PA.

WATER QUALITY DATA. WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPFR- ATURE (DEG C)	OXYGEN. DIS- SOLVED (MG/L)	OXYGEN. DIS- SOLVED (PER- CENT SATUR- ATION)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L AS CACO3)	BICAR- RONATE (MG/L AS HCO3)	CAR+ BONATE (MG/L AS CO3)
0C1 07	0820	4.7	255	7.4	14.0	7.6	73	.1		97	
NOV							-		5.0		0
09 DEC	1520	32	177	6.8	1.0	13.2	93	. 1	3.0	66	0
14 Jan	1200		179	7.2	.0	13.6	93	.1	6.0	60	0
12 FER	1240		153	7.1	• 0	13.0	89	. 1	5.0	79	0
08	1230		550	7.0	.0	13.2	90	.1	5.0	84	0
07	1040	142	110	6.5	1.0	13.4	94	.1	3.0	28	0
13	1130	60	141	8.2	11.5	12.6	115	. 0	1.0	43	0
02	1140	49	139	7.4	12.0	11.4	106	.1	4.0	4 R	0
09	1410	13	213	7.6	17.0	8.6	A 1	.1	4.0	89	0
06	1225	8.4	234	7.8	25.5	7.8	94	.1	4.0	93	0
AUG 08	1330	36	244	8,3	23.5	9.2	107	.0	.0	99	0
SEP 15	1305	18	240	8.0	14.5	10.4	101	.0	2.0	96	0
DATE	ALKA- LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE+ DIS- SOLVED (MG/L AS CL)	NITRO- GEN. NITRATE TOTAL (MG/L AS N)	NITRO- GEN. NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN. NITRITE TOTAL (MG/L AS N)	NITRO- GEN: NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GFN+ NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN+ NO2+NO3 DIS- SOLVEN IMG/L AS N)	NITRO- GEN- AMMONIA TOTAL (MG/L AS N)
oct											
07 NOV	80	6.2	19	13							
09 DEC	54	17	25	7.2							
14 JAN	49	6.1	23	9.3	.76	*-	.01		.77		-01
12 FER	64	10	18	9.7							
08	69	13	19	10							
07	23	14	15	5.0	.59		.01		.59		.04
13	35	.4	18	5.7		*-					
05	39	3.1	15	4.7							
09	73	3.6	17	7.8	.40		.01		.41		-16
06	76	2.4	16	9.4							
08 SEP		.8	18	9.9							
15	79	1.5	19	11		•21		.00		.21	

Table 24. -- Water-quality data collected from September 1973 to September 1978--Continued 01518400 - CROOKED CREEK AT MIDDLEBURY CENTER. PA.

WATER QUALITY DATA. WATER YEAR OCTORER 1976 TO SEPTEMBER 1977

		WATE	N QUALITY	DATA. WA	IEN YEAR O	CTOMER 3	976 TO SE	PTEMBER 1	477		
DATE	NITRO- GEN+ AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN: (ORGANIC TOTAL (MG/L AS N)	ORBANIC P	ONIA .	DESANIC DIS. (MG/L	NITRO- GEN: TOTAL (MG/L AS N)	PHOS- PHORUS: Total (MG/L AS P)	PHOS- PHORUS: 015- SOLVED (MG/L AS P)	TOTAL	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)
ост											
07									•-	114	1.4
NGV 89										23	5.0
DEC 14		•27		.28		1.1	.03		.02	25	
JAN 12										Eη	
FEB 08		•-								•	
MAR 07		-51		• 25		.84	.04		.01	23	8.8
APR 13								••			
MAY										1	.16
02										FO	
09 JUL		• • 2		.58		.99	.05		.02	37	1.3
96 AUG										10	.23
08 SEP										23	2.2
15	.03		. 35		.38			.02		1 A	.87
		MATER OF		TA MATEO	YEAR OCTO	DED 1077	TO SERTE	MOED 1078			
		STREAM-	SPE- CIFIC CON-	IA. WATER	YEAR OCTO		OXYGEN. DIS- SOLVED	COLI- FORM. FECAL.	STREP- TOCOCCI FECAL.	HARD-	
		FLOW: Instan-	DUCT- ANCE	PH	TEMPER-	OXYGEN. OIS-	(PER- CENT	0.7 UM-MF	KF AGAP	NESS (MG/L	
DATE	TIME	TANEOUS (CFS)	(MICRO- MHOS)	(UNITS)	ATURE (DEG C)	SOLVED (MG/L)	SATUR- ATION)	100L5./	PFR 100 4LI	CACO3)	
OCT		10.07		10.00.0						•	
27	. 1215	73	155	7.8	10.5	11.7	104	K37	600	64	•
FEB 09	. 1135	E45	145	7.4	.0	13.6	95	K 7		58	1
MAR 24	. 0720	E 300	85	7.1	1.5	13.3	95	100	5900	32	•
MAY 25	. 1350	113	140	9.1	18.5	12.0	127	A1	130	58	•
JUN 28	. 1335	10	200	7.8	23.0	8.4	97		130	82	•
JUL 25		7.3	220	7.9	22.0	9.2	105	160	240	86	
AUG			235		25.0	12.3	146	29	86	100	
SEP		4.6		8.8							
28	. 1030	6.8	210	7.4	14.5	9.6	93	140	210	51	
DAT	HARD NESS Nonca Bonat (Mg/	 ACIDIT R~ TOTAL E HEATED L (MG/L 	ACIDIT MG/L AS	SOL VE (MG/L	DIS- D 50LVED (MG/L	5001UM 015- 50LVEN (MG/L	SODIU		SIUM DIS- SOLVE	•	
001		1.0			3.0				, ,	•	
27. FEB			0 2.		2.9				5 5.0		
09. Mar			0 .		2.6				.3 1.1		
24. May	•••	13 .	1 4.	0 10	1.6	2,	5 1		2 1.	7	
25. JUN	•••			0 17	2.3	3,	.5 1		2 1.	7	
28.	•••	12 .	1 5.	0 27	3,5	5 5.	6 1		3 2.	•	
70. 25.	••	6.	0 2.	e 0	3.6	11	a		5 2.1	5	
AUG 24.	••	14 .		0 35	4.0	в.	A 1	.5	٠	,	
5EP 28.	••	0.	.1 4.	0 15	4.7	, 7.	2 2		٠ 2.	1	
		•		-	•	•	•	•			

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518400 - CROOKED CREEK AT MIDDLEBURY CENTER. PA.

MATER QUALITY DATA: WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	BICAH- RONATE (MG/L AS HCO3)	CAR- HONATE LMG/L A> CO31	ALKA- LINITY 'MG/L AS CACO3)	CARRON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE: DIS- SOLVED (MG/L AS CL)	NITRO- GEN: NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN. NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NOZ-NO3 DIS-' SOLVED (MG/L AS N)
oct									
27 FFB	56	0	46	1.4	18	4.5	.41	.00	•41
09	49	n	40	3.1	18	5.0	.76	.00	.76
MAR 24	23	0	19	7.6	13	2.2	.57	.01	••
MAY	• 3	U	17	7.0	13	٠.٤	•51	•01	•58
25 JUN	45	•	44	•1	14	4.3			
28	85	0	70	2.2	16	7.5	.46	.01	.47
JUL 25	98	0	80	2.0	18	8.6	-11	.01	-12
AUG	-	-			-	•		-	•16
24 SEP	93	6	86	.3	21	8.8	.01	.00	•01
28	84	0	69	5.4	22	11	.08	.01	.09
DATE	NITRO- GEN+ AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN• ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN·AM- MONIA + ORGANIC DIS- (MG/L AS N)	PHOS- PHORUS. DIS- SOLVED (MG/L AS P)	PHYTO- PLANK- TON+ TOTAL (CELLS PER ML)	CHLORO- PHYLL A PHYTO- PLANK- TON, UNCORR. (UG/L)	CHLORO- PHYLL B PHYTO- PLANK- TON: UNCORR: (UG/L)	SEDI- MENT. SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE. SUS- PENDED (T/DAY)
OCT									
27 FEB	.00	. 39	.39	.01				3	•60
09	•02	•53	.25	.09				E10	
24	-07	E.30	€.37	.02	68	-000	.000	115	
25			.39	.05	960	5.42	.000	7	2.1
JUN 28	.04	.54	.58	.03	920	.000	.000	9	.25
JUL 25	.01	.34	.35	.50	7800	36.9	6.77	11	•55
AUG 24	-00	.28	.28	.21	560	11-1	2.57	4	.05
SEP 28	.04	.43	.47	.02	210	3.30	.622	7	.13

Table 24. -- Water-quality data collected from September 1973 to September 1978 -- Continued 01518400 CROOKED CREEK AT MIDDLEAURY CENTER. PA. PHYTOPLANKTON ANALYSES. OCTORER 1977 TO SEPTEMBER 1978

	PHYTOPLANK	ON AN	ALYSES!	CIUME	R 1977 T	O SEPT	FMMEN TA	/ R				
DATE TIME	MAR 2	24.78 720		25.78 350		29,78 335		25,78 400		74.78 40		28.78 030
TOTAL CELLS/ML		68	•	940		950	7	A00	•	560		210
DIVERSITY: DIVISION .CLASS .ORNERFAMILYGFNUS		0.0		0.1 0.1 0.3 2.3	,	0.4 0.4 0.4 1.8		1.4 1.4 1.9 7.3		0.6 0.6 1.1 7.6		0.0 0.0 0.0 1.8
ORGANISM	CELLS /ML	PER- CENT	CFLLS /ML	PER- CENT	CELLS /ML	PER~ CFNT	CFLLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /4L	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
CHLOROCOCCALESOOCYSTACEAE												
ANKISTRODESHUS		-		-	45	5	69)	15	3		•
KIRCHNERIELLA		-		-		•	69	i		-		-
QUADRIGULA		-		-		-	270	4		-	~-	•
SCENEDESMACEAE												
SCENEDESMUS		-		-		-	690	9		-		•
VOLVOCALES												
CHLAMYDOMONADACEAE					52	2	1400#		59	11		_
CHLANYDOMONAS		-	16	S		-	2100#			11		-
CHLOROGONIUM		•		-		-	5100W	611		_		
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
CENTRALES									•			
COSCINODISCACEAE												
CYCLOTELLA		-	32	3		-	59	1	59	11		-
_												
PENNALES												
ACHNANTHACEAE			16	5		_	69	1		_		_
ACHNANTHES		-	10	-				-	15	3		
CYMBELLACEAE		-								•		
CYMBELL4		-	220#	23	470#	51	210	3		-	59#	29
DIATOMACEAE												
DIATOMA		-		-		-		-	44	8		-
FRAGILARIACEAE												
FRAGILARIA		-		-		-		-	100#	18	15	7
SYNEDRA	14#	50	96	10	22	2		-		-		-
GOMPHONEMATACEAE				_		_				_		
GOMPHONEMA	14#	20	16	5	55	5	140	5		-	15	7
NAVICULACEAE	27#		450#	4.7	290#	22	410	5	89#	14	100#	50
NAVICULA NITZSCHIACEAE	21#	40	470#	•,	2904	32	410	,	655			- 50
NITZSCHIA		_	64	7	45	5	210	3	180#	32	15	7
SURIRELLACEAE		_	•	•		-	- • •	•	•••		•-	•
SURIRELLA	14#	20	48	5		-		-		-		-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCE AE												
EUGLENALFS												
EUGLENACEAE				_		_	1200#	14		_		
EUGLENA		-		-		-	890	11		-		-
LEPOCINCLIS		-		-		-	570	* *		-		

NOTE: 8 - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15% - OBSERVED ORGANISM: MAY NOT HAVE REEN COUNTED! LESS THAN 1/2%

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518500 - CROOKED CREEK AT TIOGA, PA.

WATED	OHA! TTV	DATA	WATED	VEAD	OCTOBED	1072	TΛ	SEPTEMBER	1077

	DATE	TIME	STREAM- FLOW. INSTAN- TAMEOUS (CFS)	SF C1 CC DL AN	PE- IFIC IN- ICT- ICE ICRO-	PH 1	EMPER- ATURE (DEG C)	OXYGEN. DIS- SOLVED (MG/L)	9		IICAR- IONATE (MG/L AS HCO3)	CAR- BONATI (MG/I AS CO	E L	INITY (MG/L AS	CARBON DIOXIDE DIS- SOLVED (MB/L AS CO2)
	SEP 05	1045	47		184	7.0	23.5	6.2		95	73		0	50	12
	DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE- DIS- SOLVED (MG/L AS CL)	NIT TO	IEN. TRATE AM ITAL T 16/L (HITRO~ GEN. IMONIA C IOTAL IMG/L IS N)	NITRO- GEN- BRGANIC TOTAL (MG/L AS N)	NITRO- GEN-AM- MONIA + ORBANIC TOTAL (MG/L AS N)	1	NITRO- GEN. F Total (MG/L AS N)	PHOS- PHORUS• TOTAL (MG/L AS P)	PHOS PHORUS ORTHI TOTAL (NG/) AS P	S• 0. L	SUS- PENDED	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)
	SEP 05	55	7.0		.79	-11	.33	.44		1.2	.14	•	08	64	8.1
			WA	TER (UALITY I	DATA, WAT	ER YEAR	OCTOBER	19	73 TO SEF	TEMBER	1974			
DATE	TIM	STRFA FLOW INSTA E TANFO (CFS	I+ DUC IN- AND OUS (MEC	1C - T- E RO-	PH (UNITS)	TEMPER- ATURE (DEG C)	SOLVE	D SAT	S- VED R- NT UR-	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDI (MG/ AS CACO	TY 801 L (1	CAR- NATE MG/L AS CO3)	CAR- BONATE (MG/L AS CO3	AS
90	. 161	5	35	197	6,9	16.5	9,	3	94		•		89	ı	0 71
96 96	. 130	0	61	153	7.9	5.1	11.	.6	91	.0)		63	1	0 55
11	. 130	0 2	92	134	6.8	2.	12.	.6	97	• 0)		52		0 36
08		5 6	66	346	6.9		13.	. 0	89	.1	l		50		0 41
13		0 6		137	6.4	2.0			94	• 1			48		0 36
13				111	7.1	2.			100	.0			32		0 25
02			-	117	7.A	6.0			99	. 0			34		0 29
70N 01				144	7.6	16.6			108	.0			54		0 43
JUL.			_	168	7.5	19.9			94	.0			81		0 62
17			-	190	7.7	23.0			99	•1			86		0 66
SEP			-	197 205	8.2 7.A	27.0 24.0			101	•1			97 91		0 78
12	. 162	U	10	205		24.1	, •		101	• •			71		
DATE	CARR DIOXI OIS SOLV (MG/ AS CO	NE SULFA - DIS- EN SOLV L (MG.	- 015 /ED 50L /L (MG	E. VEN	NITRO- GEN+ NITRATE TOTAL (MG/L AS N)	NITRO- GEN- AMMONI TOTAL (MG/L AS N)	GFN	MON1 C ORGA TOT (MG	AM- A • NIC AL /L	NITRO- GEN• TOTAL (MG/L AS N)	PHOS PHORU Tota (Mg/ AS P	- PH S. 01 L TI L (1	HOS- ORUS: PTHO. OTAL MG/L S P)		CHARGE . SUS- D PENDED
0CT	. 18	1'	. 1	0	.05	.04		19	.48	.53		13	.10		9 .85
NOV 06		.3 10		5.0	.27	.00			. 37	.60		18	.11	_	
0EC				1.9	.50	.01			. 29	.79		17	.07		0 14
JAN OR				4.5	.70	.09			. 31	1.0		03	.02		7 1.2
FEB 13		17	,	5.0	.70	.01	5 .1	9	.24	.94		0.0	.00	ε	
MAR 13		•1 :0	5	1.5	.32	• 0 1	1	8	. 25	.51		03	.01	2	4 5.8
APR Q<		.9 19	•	4.0	.40	-17		6	.78	1.6		13	.10	78	9 633
MAY 01	. 2	.2 20	,	4.0	.20	-19		•4	. 34	.54		04	.02	1	0 3.6
15		•1 1	7	5.0	•41	.04	:	10	. 39			06	.02	1	7 1.2
JUL 17	. 2	.7 19	•	5.A	.05	•04		11	. 30	. 34		0.3	.07	E	0
AUG 14	. 1	.0 1	,	7.0	•05	.04		' 4	. 37	. 35		07	.03	3	0 ,89
SEP 12	. 2	.5 10	•	8.0	.07	.01	1	6	. 23	.30		n 7	.04	1	6 .44

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518500 - CROOKED CREEK AT TIOGA. PA.

WATER QUALITY DATA, WATER YEAR OCTORER 1974 TO SEPTEMBER 1975

DATE	TIME	STRFAM- FLOW. INSTAN- IANFOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN. DIS- SOLVED (PER- CENT SATUR- ATION)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L AS CACO3)	BICAR+ BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS (03)	ALKA- LINITY (MG/L AS CACO3)
OCT												
10 NOV	1630	10	551	7.5	15.0	11.6	114	.1	4.0	105	0	83
07 DEC	1145	64	185	7.2	8.0	11.4	96	.0	3.0	67	0	54
09	1515	513	128	7.7	2.0	13.A	100	•0	4.0	48	0	4.5
14 FEB	1545	331	114	6.A	• 0	14.8	101	.0	3.0	32	0	21
03	1545		135	6.9	.5	14.0	97	.0	5.0	46	G	31
05	1515	131	132	7.2	1.9	13.0	92	•0	4.0	40	0	35
DATE	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE + DIS- SOLVED (MG/L AS (L)	NITRO- GEN+ NITRATE TOTAL (MG/L AS N)	NITRO- GEN. AMMONIA TOTAL (MG/L AS N)	NITRO- GEN+ ORGANIC TOTAL (MG/L AS N)	NITRO- GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN. TOTAL (MG/L AS N)	PHOS- PHORUS. TOTAL (MG/L AS P)	PHOS- PHORUS. ORTHO. TOTAL (MG/L AS P)	SEDI~ MENT. SUS~ PENDED (MG/L)	SEDI- MENT DIS- CHARGE. SUS- PENDED (T/DAY)
0C7 10	5.2	19	8.5	.14	.09	.17	•26	.40	.08	.03	18	.49
07 DEC	6.8	28	10			~-					54	9.3
09 JAN	1.5	25	5.0	1.2	.08	.51	.59	1.8	.08	.05	50	69
14 FEB	8.1	20	4.0	.57	.04	.29	.33	.90	.07	.04	19	17
03	9.3	20	5.5	.66	.03	•31	.34	1.0	.07	.03	€O	
MAR 05	4.0	20	5.0	.88	.01	.25	.26	1.1	.06	.04	10	3.5

DATE	TIME	ALUM- INUM. TOTAL RECOV- ERABLF (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM. TOTAL RECOV- ERABLE (UG/L AS CR)	COBALT+ TOTAL RECOV- ERARLE (UG/L AS CO)	COPPER. TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 10	1630	450	<1	1	0	3	n
			MANGA-				
	IRON.	LEAD.	NESE+	MERCURY		STL VFR.	ZINC.
	TOTAL	TOTAL RECOV-	TOTAL RECOV-	TOTAL RFCOV-	SELE-	TOTAL RECOV-	TOTAL RECOV-
	RECOV- ERABLE	ERABLE	FRARLE	ERABLE	OTAL	FRARLE	FRARLE
	(UG/L	(UG/L	(UG/L	(UG/L	(UG/L	IUG/L	(UG/L
DATE	AS FE	AS PR	AS MN)	AS HG)	AS SE)	AS AG)	AS 7N1
OCT							
10	1300	2	130	<.5	S	0	40

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518550 - CROOKED CR AT TIOGA, PA.

WATER QUALITY DATA. WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975

	**	IEN GUAL	III DAI			OCTORER	1914 10	36216496	. 1413		
			SPE	_				OXYGEN			
			CIF					DIS-			
		STREAM						SOLVE		TTY	
		FLOW.	DUC	T-			OXYGEN	. (PER-			CIDITY
		INSTAN	- ANC	Ε	PH	TEMPER-	DIS-	CENT	HEAT	ED	(M6/L
	TIME	TANEOU	S IMIC	RO-		ATURE	SOLVE	D SATUR	- (MG		AS
DATE		(CF5)	MHO	S) (L	MITS	(DEG C)	(MG/L) ATION) AS	H)	CACOS
APR											
01	1445	12	5	117	7.4	5.5	11.	a 9	3	.0	7.6
MAY				- •							
14	1530	18	1	136	7.9	15.0	10.	0 9	8	- 1	1.0
JUN			_				_		_		
JUL JUL	1545	51	2	133	7.2	17.0	9.	0 9	3	.0	6.0
09	1200	2	4	196	A.0	25.5	8.	3 16	٥	.0	2.0
AU6		•	•				٠.		•	••	
06	1500	5	2	203	7.4	21.5		0 9	0	. 1	6.0
SEP											
11	1220	1	6	214	R.4	19.0	10.	2 10	19	.0	• (
					ARRON		CHLO-				NITRO-
	BICAR-		ALK		OXIDE	SULFATE		GEN		N.	GEN.
	BONATE (MG/L	CAR- BONATE	LINI (MG		015-	DIS-	DIS-	NITRAT D TOTAL			HOZ+NO:
	AS	(MG/L	AS		SOLVED MG/L	SOLVED (MG/L	SOLVE (MG/L				(M6/L
DATE	HC03)	AS COS			(202)	AS 504)					AS NI
APR 01	41		0	30	2.4	19	4.				
MAY	•1		U	30	2.6	14	••	5 .9			
14	46		0	42	. 9	17	3.	5 .1	9	.03	.27
JUN			•		• •		- •			•••	
10	50		0	39	5.0	19	3.	0 .5	0		
JUL			_				_		_		
09 AUG	87		0	73	1.4	19	7.	0 .1			
06	93		٥	76	5.9	20	9.	0 .1	3	.01	. 84
SEP			•				·•	•		•••	• • • •
11	90		0	78	.6	50	9.	0 .0	5		
				NITRO						SEDI	-
			NITRO-	GEN: AF				PHOS-		MENT	
		GEN.	GEN.	MONIA				HORUS.	SEDI-	D15-	
			RGANIC	ORGANI				ORTHO.	MENT.	CHARG	
		OTAL MG/L	TOTAL (MG/L	TOTAL (MG/L				TOTAL	SUS-	SUS- PEND	
			AS N)	AS N			MG/L S P)	(MG/L AS P)	PENDED (MG/L)	T/DA	
		, ,,	4 5 (4)	H3 117	3	· · ·	3 + 1	A3 F1	, HO1 [1	11704	• •
	PR										
	01	•02	.28	•3	10	.80	.16	.11	192	65	1
	AY 14	.04	.47		. 1	.73	.61	•05	931	455	
	UN		•••	• •	,,	• / 3	•01	•02	7.11	473	'
	10	.01	.41		2	.92	.14	.09	134	77	
J	JL										
	9	- 05	.27	• 3	15	.50	.16	.08	35	5	. 3
	JG Na		.46							_	
	06 Ep	.00	. 70	• •	6	1.3	.04	.04	160	,	.5
	11	.02	.19	• 2	1	.26	.69	.07	43	1	.9
		-					•			•	

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518550 - CROOKED CR AT TIOGA. PA.

WATER QUALITY DATA. WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

	TIME	STREAM- FLOW+ INSTAN- TANEOUS	SPE- CIFIC CON- DUCT- ANCE (MICRO-	РН	TEMPER- ATURE	OXYGEN. DIS- SOLVED	OXYGEN+ DIS- SOLVED (PEP- CENT SATUR-	ACIDITY TOTAL HEATED (MG/L	ACIDITY (MG/L AS
DATE		(CFS)	MHOS)	(UNITS)	(DEG C)	(MG/L)	ATION)	AS H)	CAC031
07	1145	75	182	7.2	13.0	9.6	91	.0	4.0
11	1150	209	152	7.3	10.0	10.6	94	.1	4.0
DEC 10	1410	260	131	6.9	1.5	13.0	92	.1	4.0
JAN 07	1140	88	161	7.0	.0	14.0	96	. 1	3.0
FE8 05	0915	111	133	7.6	.0	13.6	93	.1	3.0
MAR 09	1015	181	119	7.3	1.0	13.0	9?	.0	2.0
APR 06	1045	159	125	8.1	7.0	12.A	105	.1	1.0
MAY 06	0930	62	158	A.0	13.5	10.9	104	.0	2.0
02 NUL	0900	214	138	7.7	14.0	10.0	96	.0	2.0
JUL 13	0940	36	194	7.6	14.0	8.4	8.8	•1	4.0
AUG	0850	42	192	7.8	18.5	8.8	93	.0	2.0
SEP 08	0825	9.1	234	7.8	17.0	8.4	A7	.0	2.0
*****	•005	7						••	
	BICAR- BONATE (MG/L AS	CAR- BONATE (MG/L	ALKA- LINITY (MG/L AS	CARPON DIOXIDE DIS- SOLVED (MG/L	SULFATE DIS- SOLVED (MG/L	CHLO- RIDE. DIS- SOLVFD (MG/L	NITRO- GEN, NITRATE TOTAL (MG/L	NITRO- GEN. NITRITE TOTAL (MG/L	NITRO~ GEN+ NO2+NO3 TOTAL (MG/L
DATE	BONATE (MG/L	BONATE	LINITY (MG/L	DIOXIDE DIS-	DIS- SOLVED	RIDE.	GEN, NITRATE TOTAL	GFN+ NITRITE TOTAL	GEN. NO2+NO3 TOTAL
OCT	BONATE (MG/L AS HCO3)	BONATE (MG/L AS CO3)	LINITY (MG/L AS CACO3)	DIOXIDE OIS- SOLVED (MG/L AS CO2)	DIS- SOLVED (MG/L AS SO4)	RIDE. DIS- SOLVFD (MG/L AS CL)	GEN, NITRATE TOTAL (MG/L AS N)	GEN: NITRITE TOTAL (MG/L AS N)	GEN+ NO2+NO3 TOTAL (MG/L AS N)
0CT 07	BONATE (MG/L AS HCD3)	BONATE (MG/L AS CO3)	LINITY (MG/L AS CACO3)	DIOXIDE DIS- SOLVED (MG/L AS CO2)	DIS- SOLVED (MG/L AS SO4)	RIDE. DIS- SOLVED (MG/L AS CL)	GEN, NITRATE TOTAL (MG/L AS N)	GEN+ NITRITE TOTAL (MG/L AS N)	GEN+ NO2+NO3 TOTAL (MG/L AS N)
OCT 07 NOV 11 DEC	BONATE (MG/L AS HCO3) 69	BONATE (MG/L AS CO3)	LINITY (MG/L AS CACO3) 60	DIOXIDE DIS- SOLVED (MG/L AS CO2) 7.0	DIS- SOLVED (MG/L AS SO4) 20	PIDE DIS- SOLVED (MG/L AS CL)	GEN, NITRATE TOTAL (MG/L AS N) .70	GEN+ NITRITE TOTAL (MG/L AS N)	GEN+ NO2+NO3 TOTAL (MG/L AS N)
OCT 07 NOV 11 DEC 10	BONATE (MG/L AS HCD3) 69 53	BONATE (MG/L AS CO3)	LINITY (MG/L AS CACO3) 60 43	DIOXIDE DIS- SOLVED (M6/L AS CO2) 7.0 4.3	DIS- SOLVED (MG/L AS 504) 20	RIDE. DIS- SOLVFD (MG/L AS CL) 5.5 6.0	GEN. NITRATE TOTAL (MG/L AS N) .70 .29	GEN. NITRITE TOTAL (MG/L AS N)	GEN+ NO2+NO3 TOTAL (MG/L AS N)
OCT 07 NOV 11 DEC	BONATE (MG/L AS HCO3) 69	BONATE (MG/L AS CO3)	LINITY (MG/L AS CACO3) 60	DIOXIDE DIS- SOLVED (MG/L AS CO2) 7.0	DIS- SOLVED (MG/L AS SO4) 20 18 16	PIDE DIS- SOLVED (MG/L AS CL)	GEN, NITRATE TOTAL (MG/L AS N) .70	GEN+ NITRITE TOTAL (MG/L AS N)	GEN+ NO2+NO3 TOTAL (MG/L AS N)
OCT 07 NOV 11 DEC 10 JAN 07	BONATE (MG/L AS HCD3) 69 53	BONATE (MG/L AS CO3)	LINITY (MG/L AS CACO3) 60 43	DIOXIDE DIS- SOLVED (M6/L AS CO2) 7.0 4.3	DIS- SOLVED (MG/L AS 504) 20	RIDE. DIS- SOLVFD (MG/L AS CL) 5.5 6.0	GEN. NITRATE TOTAL (MG/L AS N) .70 .29	GEN. NITRITE TOTAL (MG/L AS N)	GENO NOZ+NO3 TOTAL (MG/L AS N)
OCT 07 NOV 11 DEC 10 JAN 07 FEB 05 MAR	BONATE (MG/L AS HCD3) 69 53 46	BONATE (MG/L AS CO3)	LINITY (MG/L AS CACO3) 60 43 34	DIOXIDE DIS- SOLVED (MG/L AS CO2) 7.0 4.3 9.3	DIS- SOLVED (MG/L AS SO4) 20 18 16	RIDE. DIS- SOLVFD (MG/L AS CL) 5.5 6.0 6.3	GEN+ NITRATE TOTAL (MG/L AS N) .70 .29 .32	GENONITRITE TOTAL (MG/L AS N)	GEN- NOZ+NO3 TOTAL (MG/L AS N)
OCT 07 NOV 11 DEC 10 JAN 07 FEB 05 MAR 09	BONATE (MG/L AS HCO3) 69 53 46 57	BONATE (MG/L AS CO3)	LINITY (MG/L AS CACO3) 60 43 34 48	DIOXIDE DIS- SOLVED (MG/L AS CO2) 7.0 4.3 9.3 9.1	DIS- SOLVED (MG/L AS SO4) 20 18 16 22	FIDE- DIS- SOLVFD (MG/L AS CL) 5-5 6-0 6-3 5-5	GEN- NITRATE TOTAL (MG/L AS N) .70 .29 .32	GFN- NITRITE TOTAL (MG/L AS N)	GEN- NOZ+NO3 TOTAL (MG/L AS N)
OCT 07 NOV 11 DEC 10 JAN 07 FEB 05 MAR 09	BONATE (MG/L AS HCD3) 69 53 46 57 46	BONATE (NG/L) AS CO3) 0 0 0 0 0	LINITY (MG/L AS CACO3) 60 43 34 48 36	DIOXIDE DIS- 50LVED (M6/L AS CO2) 7.0 4.3 9.3 9.1 1.8	715- SOLVED (MG/L AS 504) 20 18 16 22 20	FIDE- DIS- SOLVFD (MG/L AS CL) 5-5 6-0 6-3 5-5 4-5	GEN- NITRAL TOTAL (MG/L AS N) .70 .29 .32	GFN- NITRITE TOTAL (MG/L AS N)	GEN- NOZ+NO3 TOTAL (MG/L AS N)
OCT 07 NOV 11 DEC 10 JAN 07 FEB 05 MAR 09 APR 06 JUN 02	80NATE (MG/L AS HCO3) 69 53 46 57 46 36	BONATE (MG/L AS CO3)	LINITY (MG/L AS CACO3) 60 43 34 48 36 30	DIOXIDE DIS- 50LVED (MG/L AS CO2) 7.0 4.3 9.3 9.1 1.6	715- SOLVED (MG/L AS SO4) 20 18 16 22 20	FIDE- DIS- SOLVFD (MG/L AS CL) 5.5 6.0 6.3 5.5 4.5	GEN+ NITRATE TOTAL (MG/L AS N) .70 .29 .32 .36	GFN- NITRITE TOTAL (MG/L AS N)	GEN- NOZ+NO3 TOTAL (MG/L AS N)
OCT 07 NOV 11 DEC 10 JAN 07 FEB 05 MAR 09 APR 06 APR 06 JUN 02 JUL 13	BONATE (MG/L AS HCD3) 69 53 46 57 46 36 46	BONATE (MG/L AS CO3)	LINITY (MG/L AS CACO3) 60 43 34 48 36 30 36	DIOXIDE DIS- 50LVED (MG/L AS CO2) 7.0 4.3 9.3 9.1 1.6 2.9	D15- SOLVED (MG/L AS SO4) 20 18 16 22 20 19 18	RIDE- DIS- SOLVFD (MG/L AS CL) 5-5 6-0 6-3 5-5 4-0 5-2	GEN- NITRAT TOTAL (MG/L AS N) .70 .29 .32 .36	GFN- NITRITE TOTAL (MG/L AS N)	GEN- NOZ+NO3 TOTAL (MG/L AS N)
OCT 07 NOV 11 DEC 10 JAN 07 FEB 05 MAR 09 APR 06 MAY 06 JUN 02 JUL	BONATE (MG/L AS HCD3) 69 53 46 57 46 36 46 61	BONATE (MG/L AS CO3)	LINITY (MG/L AS CACO3) 60 43 34 48 36 30 36 51	DIOXIDE DIS- 50LVED (MG/L AS CO2) 7.0 4.3 9.3 9.1 1.8 2.9 .6	D15- SOLVED (MG/L AS SO4) 20 18 16 22 20 19 18 17	RIDE- DIS- SOLVFD (MG/L AS CL) 5-5 6-0 6-3 5-5 4-5 4-8	GEN- NITRAT TOTAL (MG/L AS N) .70 .29 .32 .36	GFN- NITRITE TOTAL (MG/L AS N)	GEN- NOZ-NO3 TOTAL (MG/L AS N)

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518550 - CROOKED CR AT TIOGA, PA.

WATER QUALITY DATA. WATER YEAR OCTORER 1975 TO SEPTEMBER 1976

DATE	NITRO- GEN+ AMMONIA TOTAL (MG/L AS N)	NITRO- GEN. ORGANIC TOTAL (MG/L AS N)	NITRO- GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN+ TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS. ORTHO. TOTAL (MG/L AS P)	SEDI- MENT. SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE: SUS- PENDED (T/DAY)
OCT								
07	.07	.49	.56	1.3	.30	.13	4500	911
NOV								
11	.03	.60	.63	.92	.15	.08	108	61
10	.04	.37	-41	.76	.16	.05	169	119
JAN	•••			•	•••	•••	•	•••
07							ΕO	
FER							_	
05 Mar					•-	••	5	1.5
09	.02	.17	.19	.55	.01	.01	A	7.9
APR								-
06							A	3.4
PAY 06							12	7.0
JUN							12	7.0
02	.01	.29	.30	.50	.05	.02	16	9.2
JUL								
13							30	2.9
AUG 11							17	1.9
SEP							1,	1.7
08	•02	.11	•13	.23	.05	.01	13	.32

WATER QUALITY DATA, WATER YEAR OCTORER 1976 TO SEPTEMBER 1977

DATE	TIME	STREAM- FLOW+ INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPFR- ATURE (DEG C)	OXYGFN. DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L AS CACO3)	RICAR- RONATE (MG/L AS HCO3)	CAR- RONATE (MG/L AS CO3)
OCT 07	1000	10	259	8.1	15.0	9.9	97	.0	1.0	110	
NOV	1000	10	627	9.1	17.0	7,7	4,	• 0	1.0	112	0
10 DEC	0845	52	172	7.3	1.0	13.1	92	.1	3.0	67	0
14 JAN	1245		173	7.0	.0	14.3	98	.1	7.0	55	0
12 FE0	1330		188	7.2	•0	13.6	93	.1	4.0	79	0
OR	1315		511	6.A	• 0	13.2	90	.1	6.0	85	0
67	1140	256	113	6.6	.5	13.4	93	.1	4.0	29	0
13	1240	106	144	8.0	15.0	10.9	107	.0	1.0	47	0
02	1245	68	138	8.3	14.0	11.0	106	. 0	.0	49	0
09	1635	18	202	7.9	13.5	10.1	96	.0	2.0	AA	0
06 AUG	1325	11	240	8.3	27.0	A.0	99	.0	.0	101	0
08 SEP	1500	66	\$56	7.9	25.0	A.1	96	.1	3.0	AA	0
15	1355	3.8	240	8.2	19.0	10.6	113	.0	1.0	92	0

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518550 - CROOKED CR AT 7106A: PA.

WATER QUALITY DATA, WATER YEAR OCTORER 1976 TO SEPTEMBER 1977

		*****	W WOME !			OCTONER	1776 10 3	CLICABEN	17//		
DATE	ALKA- LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE. DIS- SOLVED (MG/L AS CL)	NITRO- GEN+ NITRATE TOTAL (MG/L AS NI	NITRO- GEN: NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN+ NITRITE TOTAL (MG/L AS N)	NITRO+ GEN+ NITRITE DIS+ SOLVED (MG/L AS N)	NITRO- GEN+ NGZ+NG3 TOTAL (MG/L AS N)	MITRO- GEN. NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN: AMMONIA TOTAL (MG/L AS N)
0CT 07	92	1.4	18	A.8							~-
NOV 10 DEC	55	5.4	21	6.5							
14 JAN	45	8.8	81	8.8	.60		.01		.61		-00
12 FEB	65	6.0	17	8.0							
OR	70	22	16	8.2							
OT	24	15	15	5.0	.51		.01		.52		.05
13 Hay	39	.7	18	5.1							
JUN 02	40	••	15	4.6				*-			
.09 JUL	72	1.8	17	6.8	.14		•01		.15		-02
06	83	• 8	50	8.4							
OB	72	1.8	17	9.3							
15	76	•9	55	10		•55		.00		•55	
A.=#	NITRO- GEN• AMMONIA DIS- SOLVED (MG/L	NITRO- GEN. ORGANIC TOTAL (MG/L	NITRO- GEN. ORGANIC DIS- SOLVED (MG/L	NITRO+ GEN+AM- MONIA + ORGANIC TOTAL (MG/L	NITRO- GEN-AM- MONIA + ORGANIC DIS- (MG/L	NITRO- GEN: TOTAL (MG/L	PHOS- PHORUS. TOTAL (MG/L	PHOS- PHORUS: DIS- SOLVED (MG/L	PHOS- PHORUS. ORTHO. TOTAL IMG/L	SEDI- MENT. SUS- PENDED	SEDI- MENT DIS- CHARGE, SUS- PENDED
DATE	AS N)	AS N)	AS NI	AS N)	AS N)	AS N)	AS P)	AS P)	AS P)	(MG/L)	(T/DAY)
0CT 07										10	.27
10 0FC										42	5.9
14 JAN		.35		•35		.96	.05		.01	16	
12 FER										1	
08 MAR										6	
07		•31		•36		.88	• 05		.01	35	21
13 May		•-								A	2.3
JUN 02										A	1.9
09 JUL		.27		.29		.44	.03		.01	23	1.1
D6						•-				11	.33
SEP				**					*-	301	54
15	.03	 HATED /	.42 	ATA, WATE	.45 B YEAR OC	**************************************	 7 TO SEPT	,07 EMBER 197		80	.82
		WAIEN	_		TEAN OL	10nE# 141					
DATE	TIME	STREAM FLOW• INSTAM TAMEOU! (CFS)	- TOUCT- ANCE MICRO		TEMPER ATURE) (DEG C	SOLVE	D SATUR	FORM. D FECAL 0.7 UM-MF	TOCOCCT FECAL KF AGAR (COLS. PER	HARD* HESS (M6/L 45)
oct										_	
27 FEB	_		151								
09 Mar 24			- III 8'						:7 :1 56		
MAY 25			12						:3 58 :3 120		
JUN 28			25						- 56		
JUL 25			24						15 50		
AUG 24									6 310		
SEP 28			25	5 6.	4 16.			5 K	3 160	7	6

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518550 - CROOKED CR AT TIOGA, PA.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	HARD- NESS+ NONCAR- BONATE (MG/L CACO3)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM. DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION PATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)
0CT 27 FEB	10	.0	.0	27	3.1	2.6	7	•1	1.8
09	50	.0	2.0	16	2.5	4.5	16	.3	1.5
24 MAY	13	.1	3.0	9.2	1.6	2.7	16	.2	1.4
25	6	.0	.0	14	2.2	4.0	16	.3	2.0
JUN 28	24	.0	.0	36	4.7	7.1	12	.3	2.5
JUL 25	25	.0	.0	35	4.7	7.2	12	.3	2.5
AUG 24	31	.0	.0	35	5.6	7.6	13	.3	2.5
SEP 28	0	.0	.0	20	6.4	7.6	17	.4	2.0
DATE	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACO3)	CARRON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO+ RIDE+ DIS- SOLVED (MG/L AS CL)	NITRO- GEN. NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GFN• NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN+ NO2+NO3 DIS- SOLVED (MG/L AS N)
OCT							_		
27 FEB	59	6	58	•1	20	4.5	.18	.00	-19
09 Mar	37	0	30	3.7	18	5.4	.63	.00	+63
24 May	21	a	17	7.1	14	5.0	.51	.00	•51
25 JUN	34	6	38	•0	15	4.6	.16	.00	-16
70r 58	105	0	86	.7	25	10	.57	.01	-58
25 AUG	93	5	85	• 3	24	9.7	.48	.01	.49
24 SEP	92	5	79	•5	27	9.7	.60	.01	•61
20	116	1	97	.8	28	9.5	.37	.01	.38
DATE	NITRO- GEN• AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN. ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN:AM- MONIA + ORGANIC DIS- (MG/L AS N)	PHOS- PHORUS. DIS- SOLVED (MG/L AS P)	PHYTO- PLANK- TON+ TOTAL (CELLS PER ML)	CHLORO- PHYLL A PHYTO- PLANK- TON. UNCORR. (UG/L)	CHLORO- PHYLL B PHYTO- PLANK- TON: UNCORP: (UG/L)	SEDI- MENT: SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE. SUS- PENDED (T/DAY)
0CT 27	•00	.18	.18	.00		••	•-	3	.07
FEB 09	.00	.27	.27	.04				£15	
MAR 24	.03	.33	.36	.01	42	3.47	1.26	27	
MAY 25	•01	.48	.49	.02	700	.000	.000	9	•35
JUN 28	•05	.36	.38	.01	2400	5.02	1.03	3	•01
JUL 25	•00	.17	.17	.01	5000	4.29	.000	5	.01
AUG 24	.00	.44	.44	.01	1900	3.13	.155	4	•01
SEP 28	.03	.00	.03	.00	530	.000	.000	5	.01

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518550 CROOKED CR AT TIOGA. PA.
PHYTOPLANKTON ANALYSES. OCTORER 1977 TO SEPTEMBER 1978

DATE TIME	MAR 2 14			25,78 510		28•78 520		25.78 715		>4.78 500		211.79 150
TOTAL CELLS/ML		42		700	>	400	2	000	1	900		530
DIVERSITY: DIVISION .CLASSORDERFamilyGrnus	0 0 1	.0 .0 .9 .6		0.3 0.3 0.3 2.6 2.6		1.8 1.6 2.0 3.0 3.2		1.4 1.4 2.1 3.1 3.2		1.5 1.5 2.0 2.7 3.3		1.0 1.2 2.2 2.8
DRGANISM		PER-	CFLLS /ML	PER-	CELLS /ML	PER- CENT	CELLS /ML	PFR- CFNT	CFLLS /ML	PFR- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA IGREEN ALGAE, .CHLOROPHYCEAE .CHLOROCOCCALESMICRACTINIACEAESOLENKINIA		-		-			22	1	15	1		-
QOCYSTACEAEANKISTRODESMUS		-		-	1 30	6	45	?	44	,	15	3
CHODATELLA KIRCHNFRIELLA		-		-	47 	3	22	1		-		•
OncYSTIS		-		-		-		-	59	3		-
SELENASTRUMSCENEDESMACFAE		-		-	55	1		-	73	•	15	3
ACTINASTRUM CRUCIGFNIA		-		-		•		-		-	180#	33
SCENEDESMUS		-		-	630#	26	340#	19	15	1 -	 59	11
TETRASTRUM TETRASPORALES		-		-	55	i		•		-		.:
PALMELLACEAE												
SPHAEROCYSTISVOLVOCALES		-		-	~-	-		-	120	6		-
CHLAMYDOMONADACEAECHLAMYDOMONASZYGNFMATALES		-		•	45	5	180	9		-		-
DESMIDIACEAE COSMARIUM		_						_		_		_
CHRYSOPHYTA .BACILLARIOPHYCEAECENTRALESCOSCINODISCACEAE										-	15	3
CYCLOTELLA	14# :	33		-	55	1	270	14		-		-
PENNALESACHNANTHACEAFACHNANTHES		_		_			490#	25				_
COCCONFIS		-		-		-	45	2		-	59	11
CYMBELLA		-	140#	50	160	7	89	5	280	15	73	14
FRAGILARIACEAF	14# 3	33		-		-		-		•		-
FRAGILARIA		-	110#	-	1 # 0	8		-	44	2		-
GOMPHONFMATACEAE			1104		140			-		-		-
GOMPHONEMAMERIDIONACEAF	14# 3	33	64	9	500	8	110	6	29	5	15	3
MERIDIONNAVICULACEAE		-		-	55	1		-		-		-
GYROS[GMA		-		_		-		-		-	15	3
NAVICULA STAURONEIS		-	190#	27	89	•	45	2	130 15	7 1	88#	17
NITZSCHIACEAE							_					-
NITZSCHIA Surirellaceae	**	-	4R	7	я9	•	67	1	88	5		-
SURIRFLLA		-	110	16		-		-		-		-
CRYPTOPHYTA (CRYPTOMONADS) CRYPTOPHYCEAE CRYPTOMONADALES CRYPTOMONADACEAE CRYPTOMONADACEAE		-		_		•	45	7		-		-
CYANOPHYTA (BLUE-GREEN ALGAE) .CYANOPHYCEAECHRONCOCCALESCHRODCOCCACEAFAGMENFLLUM									250.			
ANACYSTISHORMOGONALES		-	35	5	560#	24	160	<u>-</u>	350# 430#			-
OSCILLATOPIACEAE OSCILLATOPIA		-		-		-		-	180	9		-
EUGLENOPHYTA (FUGLENOIDS) .EUGLENOPHYCFAEFUGLENALESEUGLENACEAE												
TRACHELOMONAS	==	-		:	45 p9	4		:		:	:-	:

NOTE: # - NOMINANT ORGANISMS EQUAL TO OR GREATER THAN 15%
- - ORSERVED ORGANISMS MAY NOT HAVE REEN COUNTEDS LESS SHAN 1/28

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518700 - TIOGA RIVER AT TIOGA JUNCTION. PA.
WATER QUALITY DATA. WATER YEAR OCTOBER 1972 TO SEPTEMBER 1973

					A1A. WA	IEK TEAN	UCTOBE			PIEMMEN	1973			
	DATE	FI IN: TIME TAI	CREAM- CO LOW: DO STAN- AI NEGUS (M	PE- IFIC ON- UCT- NCE ICRG- HOS) (U		TEMPER- ATURE (DEG C)	OXYGEN DIS- SOLVE (MG/L	S I, (: :D S		BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE IMG/L AS COS	L1	INITY (MG/L AS	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)
,	SEP 05	1540	75	276	4.4	27.0	10.	•	126	16		0	11	11
	03	1346	73	210	6.4	21.0	10.		126	10		U	11	**
	D S	LFATE R IS- D OLVED S MG/L (IDE. IS- NI OLVED T MG/L (GEN. TRATE AM OTAL T MG/L	ITRO- GEN, MONIA OTAL MG/L S N)	NITRO- GEN+ ORGANIC TOTAL (MG/L AS N)	NITRO GEN+AM MONIA ORGANI TOTAL (MG/L AS N)	I- • N IC . T	ITRO- GEN. I OTAL MG/L S NI	PHOS- PHORUS. TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	5, 5	SUS- PENDED	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)
,	SEP		_											
	05	29	9.1	.41	•12 ••••••	.13	.2		.66	.08	• 0	55	16	3,2
DATE	TIME	STRFAM- FLOM+ INSTAN- TANFOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	JALITY DA PH (UNITS)	TEMPER ATURE (DEG C	OXYG I- DI SOL	0X S EN• (5- VED 5	YGEN. DIS- OLVED PER- CENT ATUR- TION)	ACIDIT TOTAL HEATER (MG/L AS H)	Y ACIDI I (MG/	81 TY 80	CAR- NATE MG/E AS	CAR- BONATE (MG/L AS CO3	AS
0CT	1700	131	252	7.2	16.	.5	9.8	100	-	-		19		0 16
06 DEC	1350	281	185	6.8	5.	0 1	2.1	95		0		13		0 14
11	1500	1300	139	7.0	۶.	5 1	2.4	91	•	1		18		0 15
08 FEB	1335	£332	194	5.9	•	0 1	3.8	94	•	2		10		0 9
13	1650	F300	165	7.2	1.	. 5 1	3.6	97	•	1		16		0 13
13 APR	1715	883	133	6.5	5.	0 1	3.6	99	•	1		9		0 6
02		2900	120	7.6	7.	0 1	5•5	100	•	0		24		0 55
JUN		610	160	6.9	16.		9.8	100		0		26		0 19
JUL 12		178	171	6.9	20.		9.2	100		0 10		24		0 19
17 AUG 14		93 52	255 323	6.6 7.0	22.		8.4 8.0	96		1 40		24		0 48
SEP 13		45	329	6.4	21.		9.0	101			.0	10		0 10
DATE	CARBON DIOXIDE DIS- SOLYED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- PIDE+ DIS- SOLVED (MG/L AS CL)	NITRO- GEN+ NITRATE TOTAL (MG/L AS N)	NITRO GEN+ AMMONI TOTAL (MG/L AS N)	GEI A ORGAI TOT (MG	RO- GEN N+ MOI NTC ORI AL TI /L (I	ITRO- N+AM- NIA + GANIC OTAL MG/L S N)	NITRO GEN• TOTAL (MG/L AS N)	PHOPU TOTA (MG/	- PHI IS 01 L T	HOS- ORUS. PTHO. OTAL MG/L S P)	SEDI- MENT+ SUS- PENDE (MG/L	CHARGE . SUS- D PENDED
0CT	1.9	92	9.1	.18	•0	17	.25	.32	.5	in .	06	.02	1	6 5.7
06		63	5.0	. 34	• 1		.31	.42			05	.02		1 16
DEC 11	2.9	40	2.1	.63	• 0	15	.27	.37	.9	۰۹ ،	17	.09		1 128
JAN 08	20	40	5.1	.90	• 1	\$.17	.29	1.7		03	.01	2	1 19
FEB 13	1.4	49	5.5	.70	- 1	1	.23	.34	1.0		03	.02	3	4 28
13	4.7	35	4.5	.45	- 0	19	. 16	• 25	.7	0.	95	.01	5	7 64
02	1.0	25	3.0	1.5	• 1	4 1	٠,٦	1.4	2.9		49	. 33	89	4 7000
JUN		45	7.0	• • 0	. 2	•	.29	•53	.9	3 .	06	.03	5	7 94
12	4.A	51	6.0	.61	• 0	8	.21	•59	.9	0 .	0.5	.01		6.9
17		97	7.0	•53	• 1	5	-12	.27	.5		01	.00		1 .25
14 SEP	2.6	127	9.0	.16	• 1	1	.16	.27	.4	з.	01	.00		4 ,56
13	5.4	118	10	. 34	.0	9	. 115	.14	. 4	а .	0.1	.00	Ε	0

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518700 - TIOGA RIVER AT TIOGA JUNCTION, PA.

WATER QUALITY DATA. WATER YEAR OCTORER 1973 TO SEPTEMBER 1974

OATE	TINE	ALUM- INUM. TOTAL RECOV- ERABLE (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	CADMIUM TOTAL RECOV- ERABLE IUG/L AS CD1	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COBALT. TOTAL RECOV- ERABLE (UG/L AS CO)	COPPER. TOTAL RECOV- ERABLE (UG/L AS CU)	IRON+ TOTAL RECOV- ERABLE (UG/L AS FE)
FER								
13	1650							
13	1715							~-
APR 02	1545							
MAY	1545							
01 JUN	1650	5600	7	0	0	13	20	3500
12	1730	0	1	0	10	16	10	330
JUL		150	<1	1	٥	18	20	4.0
17 AUG	1300	150	<1	•	U	• • •	, ,,	
14	1645	70	0	1	0	34	0	50
SEP 13	0900	190	<1	1	<10	75	10	120
			MAN	GA~				
		LEA	. NES	F. MERCI		SILV		
	IRO							AL OV-
	10							BLE
	SOL							
	(ne							7N)

		LEAD.	NESF.	MERCURY		SILVER+	71NC 1
	IRON.	TOTAL	TOTAL	TOTAL	SELE-	TOTAL	TOTAL
	015-	KECOV-	RECOV~	RECOV-	NIUM.	RECOV-	RECOV-
	SOLVED	ERABLE	ERARLE	ERARLE	TOTAL	ERAGLE	ERABLE
	(UG/L	(UG/L	(UG/L	(UG/L	(IJG/L	(UG/L	いらくし
DATE	AS FE)	AS PRI	AS MN1	AS MG)	AS SET	AS AG)	AS ZN)
FEB							
13	0						~-
MAR							
13	60						~-
APR							
02	110						~-
MAY							
01		14	930	<.5	0	0	80
JUN							
12		5	1200	<.5	1	1	120
JUL							
17		0	0051	<.5	1	0	130
AUG							
14		1	3000	<.5	0	ŋ	340
SEP							
13		2	3900	<.5	< 5	1	580

WATER QUALITY DATA: MATER YEAR OCTORER 1974 TO SEPTEMBER 1975

NATE	TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN. DIS- SOLVED (MG/L)	OXYGEN+ DIS- SOLVED (PER- CENT SATUR- ATION)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L AS CAC03)
OCT						10.0	88	•1	7.0
11	0915	65	329	6.5	10.0	10.0	80	• 1	
07	1300	289	194	7.0	P.0	13.2	111	• 0	3.0
DEC 19	1645	2690	108	7.2	2.0	12.6	91	.0	3.0
JAN						15.6	107	. 1	7.0
I4 FEB	1700	1250	147	5.9	•0	17.0	10,	• • •	
03	1645		161	5.6	•5	13.6	94	-1	6.0
MAR 05	1615	E460	172	6.6	1.0	12.4	90	• 1	11
APR						12.0	96	.0	7.0
01 May	1545	524	133	7.4	6.0	17.0	711	• •	* • 11
14	1645	740	146	7.8	17.0	9.6	99	-1	5.0
JUN 10	1645	E740	156	4.9	14.0	9.2	94	.0	4.0
JUL									3.0
09 #UG	0161	£130	223	7.2	25.5	A.9	107	• 0	3.0
06	1630	E95	310	6.5	21.5	A.3	93	.1	6.0
SFP []	1400	E74	266	7.2	14.5	9.6	103	• 0	5.0

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued
01518700 - T10GA RIVER AT T10GA JUNCTION, PA.
WATER QUALITY DATA, WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975

NATE	BICAR- BONATE (MG/L AS HC03)	CAR- BONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACO3)	CARRON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE+ DIS- SOLVED (MG/L AS CL)	NITRO- GEN+ NITRATE TOTAL (MG/L AS N)	NITRO- GEN+ NITRITE TOTAL (MG/L AS N)	NITRO- GEN+ NO2+NO3 TOTAL (MG/L AS N)
nc† 11	10	0	10	5.1	132	10	.23		
07 DEC	40	0	34	6.4	53	8.0	.27		
09	23	0	21	2.3	27	4.0	.A1		
14 FEB	A	0	12	16	51	4.5	.63	**	
03 Mar	10	0	A	40	63	5.0	.75		
05	10	0	9	4.0	64	5.0	.99		
01 May	15	0	16	1.0	42	5.5	.66		
14 JUN	26	0	55	.7	35	4.0	.27	.01	.29
10 JUL	26	0	50	5+2	42	4.0	.59		
09	26	0	55	2.6	67	7.5	.16		
06	53	0	19	9.2	110	10	.29	.01	• 30
11	88	0	27	8.8	AO	10	.20		

DATE	NITRO- GEN+ AMMONIA TOTAL (MG/L AS N)	NITRO- GEN+ ORGANIC TOTAL (MG/L AS N)	NITRO- GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN+ TOTAL (MG/L AS N)	PHOS- PHORUS: TOTAL (MG/L AS P)	PHOS- PHORUS. ORTHO. TOTAL (MG/L AS P)	SEDI- MENT. SUS- PENDED (MG/L)	SFDI- MENT DIS- CHARGE+ SUS- PENDED (T/DAY)
OCT								
11 NOV	.14	.13	•27	.50	.01	.00	ΕO	
07	.03	.27	.30	.57	.05	.03	17	13
DEC	.05	.56	.64	1.4	.15	.09	151	1090
JAN	-							
14 FER	.05	.24	•59	.92	.03	.02	1.8	61
07	.09	.37	.46	1.2	.05	.03	ΕO	
MAR								82
OS	.02	.25	.27	1.3	.05	.04	52	nz.
01	.01	.20	.51	.87	.03	.02	17	24
14	.01	.19	.20	.48	.08	.02	66	132
10	.03	.34	.37	.96	.08	.05	74	
09	.03	.11	•14	.30	.02	.01	8	2.5
AUG 04	.05	.09	-14	.44	.09	.01	7	3.4
SFP 11	.04	.14	.19	.38	.03	.02	13	2.9

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued

01518700 - TIOGA RIVER AT TIOGA JUNCTION. PA.

WATER QUALITY DATA. WATER YEAR OCTORER 1974 TO SEPTEMBER 1975

DATE	TIME	ALUM- INUM. TOTAL RECOV- ERABLE (UG/L AS AL)	ALUM- INUM. DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MI(IM+ TOTAL RECOV- ERARLE (UG/L AS CR)	CHRO- MIUM. DIS- SOLVED (UG/L AS CR)
0CT 11	0915	1700		0		1		0	
07	1 300	960		2		0		0	
09	1645	2300		3		0		<10	
JAN 14 Feh	1700	1500		1		0		G	
03	1645	1800		2		0		0	
05 APR	1615		70		0		1		0
01	1545		30		η		0	•-	0
14 JijN	1645		70		s		0		<10
10 Jul	1645		50		0		1		10
09 AUG	1310		170		0		0		<10
06 SEP	1630		20						
11	1400		110						
									MANGA-
	COBALT.		COPPER.		JRON.		LEAD.		MANGA-, NESE:
	COBALT.	CORAL T.	COPPER.	COPPER.	IRON. TOTAL	IRON.	LEAD. TOTAL	LEAD.	
	TOTAL	COBALT.	TOTAL	COPPER.	TOTAL			LEAD.	NESE.
	TOTAL RECOV-	DIS-	TOTAL HECOV-	D15-		IRON. DIS- SOLVED	TOTAL	nis-	NESE. TOTAL
	TOTAL		TOTAL		TOTAL RECDY-	DIS-	TOTAL PECOV-	DIS- SOLVED (UG/L	NESE. TOTAL RECOV-
DATE	TOTAL RECOV- Frable	DIS-	TOTAL HECOV- ERABLE	DIS- SOLVED	TOTAL RECOV- ERABLE	DIS- SOLVED	TOTAL PECOV- FRABLE	DIS- SOLVED	NESE. TOTAL RECOV- ERABLE
DATE	TOTAL RECOV- FRABLE (UG/L	DIS- SOLVED (UG/L	TOTAL HECOV- ERABLE (UG/L	DIS- SOLVED (UG/L	TOTAL RECDY- ERABLE (UG/L	DIS- SOLVED ((IG/L	TOTAL PECOV- ERABLE (UG/L	DIS- SOLVED (UG/L	NESE. TOTAL RECOV- ERABLE (UG/L
DATE	TOTAL RECOV- FRABLE (UG/L AS CO)	DIS- SOLVED (UG/L	TOTAL HECOV- ERABLE (UG/L AS CU)	DIS- SOLVED (UG/L	TOTAL RECOV- ERABLE (UG/L AS FE)	DIS- SOLVED ((IG/L AS FE)	TOTAL PECOV- FRABLE (UG/L AS PB)	DIS- SOLVED (UG/L AS PB)	NESE. TOTAL RECOV- ERABLE (UG/L AS MN)
	TOTAL RECOV- FRABLE (UG/L	DIS- SOLVED (UG/L	TOTAL HECOV- ERABLE (UG/L AS (U)	DIS- SOLVED (UG/L	TOTAL RECOY- ERABLE (UG/L AS FE)	DIS- SOLVED (UG/L AS FE)	TOTAL PECOV- ERABLE (UG/L AS PR)	DIS- SOLVED (UG/L AS PB)	NESE. TOTAL RECOV- ERABLE (UG/L AS MN)
OCT 11 NOV 07 DEC	TOTAL RECOV- FRABLE (UG/L AS CO)	DIS- SOLVED (UG/L AS CO)	TOTAL HECOV- ERABLE (UG/L AS CU)	DIS- SOLVED (UG/L AS CU)	TOTAL RECOV- ERABLE (UG/L AS FE) 40	DIS- SOLVED (GG/L AS FE)	TOTAL PECOV- FRABLE (UG/L AS PR)	DIS- SOLVED (UG/L AS PB)	NESE + TOTAL RECOV-ERABLE (UG/L AS MN)
OCT 11 NOV 07	TOTAL RECOV- FRABLE (UG/L AS CO)	DIS- SOLVED (UG/L AS CO)	TOTAL HECOV- ERABLE (UG/L AS (U)	DIS- SOLVED (UG/L AS CU)	TOTAL RECOY- ERABLE (UG/L AS FE)	DIS- SOLVED (UG/L AS FE)	TOTAL PECOV- ERABLE (UG/L AS PR)	DIS- SOLVED (UG/L AS PB)	NESE TOTAL RECOVERABLE (UG/L AS MN) 5700 770
0CT 11 NOV 07 DEC	TOTAL RECOV- FRABLE (UG/L AS CO) 55	DIS- SOLVED (UG/L AS CO)	TOTAL HECOV- ERABLE (UG/L AS CU)	DIST SOLVED (UG/L AS CU)	TOTAL RECDY- ERARLE (UG/L AS FF) 40 1100 4500	DIS- SOLVED (GG/L AS FE)	TOTAL PECOV- FRABLE (UG/L AS PR) 3 2 5	DIS- SOL VED (UG/L AS PB)	NESE - TOTAL RECOV-ERABLE (UG/L AS MN) 5700 770 470 1000
OCT 11 NOV 07 DEC 09 JAN 14	TOTAL RECOV- FRABLE (UG/L AS CO) 55	DIS- SOLVEN (UG/L AS CO)	TOTAL PECOV- ERABLE (UG/L AS CU)	DIS- SOLVED (UG/L AS CU)	TOTAL RECOV- EMARLE (UG/L AS FE) AD 1100	DIS- SOLVED (UG/L AS FE)	TOTAL PECOV- ERABLE (UG/L AS PR)	DIS- SOLVED (UG/L AS PB)	NESE TOTAL RECOVERABLE (UG/L AS MN) 5700 770
OCT 11 NOV 07 DEC 19 JAN 14 FFB	TOTAL RECOV- FRABLE (UG/L AS CO) 55	DIS- SOLVED (UG/L AS CO)	TOTAL HECOV- ERABLE (GAL AS CU) 10 10 10	DIS- SOLVED (NG/L AS CU)	TOTAL RECDY- ERARLE (UG/L AS FF) 40 1100 4500	DIS- SOLVED (UG/L AS FE)	TOTAL PECOV- FRABLE (UG/L AS PR) 3 2 5	NIS- SOLVED (UG/L AS PB)	NESE - TOTAL RECOV-ERABLE (UG/L AS MN) 5700 770 470 1000
OCT 11 NOV 07 DEC 09 JAN 14 FFB 03 MAR	TOTAL RECOV- FRABLE (UG/L AS CO) 55 13 R 19	DIS- SOLVED (UG/L AS CO)	TOTAL MECOV- ERABLE (UG/L AS CU) 10 10 10	DIS- SOLVED (NG/L AS CU)	101AL RECOV- EMARLE (UG/L AS FF) 40 1100 4500 1400	DIS- SOLVED ((167L AS FE)	TOTAL PECOV- FRABLE (UG/L AS PR) 3 2 5	NIS- SOLVED (UG/L AS PB)	NESE - TOTAL PECOV-ERABLE (UG/L AS MN) 5700 770 +70 1000 1400
OCT 11 NOV 07 DEC 19 JAN 14 FFB 03 MAR 05 APR	TOTAL RECOV-FRABLE (UG/L AS CO) 55 13 R 19	DIS- SOLVEN (UG/L AS CO)	TOTAL MECOV- ERABLE (UG/L AS CU) 10 10 10	D15- SOLVED (UG/L AS CU) 10 0	107AL RECOV- ERARLE (UG/L AS FE) 40 1100 4500 1400	DIS- SOLVED (1967L AS FE) 170 70	TOTAL PECOV- FRABLE (UG/L AS PR) 3 2 5	NIS- SOLVED (UG/L AS PB)	NESE - TOTAL PECOV-ERABLE (UG/L AS MN) 5700 770 +70 1000 1400
OCT 11 NOV 07 DEC 09 JAN 14 FFB 03 MAR 05 APQ 01 MAY 14	TOTAL RECOV- FRABLE (UG/L AS CO) 55 13 R 19 23	DIS- SOLVEN (UG/L AS CO)	TOTAL MECOV- ENABLE (UG/L AS CU) 10 10 10 10	D15- SOLVED (1/67/L AS CU) 10 0	101AL RECOY-EPARLE (UG/L AS FF) 40 1100 4500 1400	DIS- SOLVED ((1967L AS FE) 170 70 40	TOTAL PECOV- FRANLE (UG/L AS PR) 3 2 5 2 4	NIS- SOLVED (UG/L AS PB)	NESE - TOTAL PECOV-ERABLE (UG/L AS MN) 5700 770 470 1000 1400
OCT 11 NOV 07 DEC 09 JAN 14 FFB 03 MAR 05 APR n1 MAY 14 JUN	TOTAL RECOV-FRABLE (UG/L AS CO) 55 13 R 19 23	DIS- SOLVEN (UG/L AS CO)	TOTAL HECOV- ENABLE (UG/L AS CU) 10 10 10 10	D15- SOLVED (UG/L AS CU) 10 0	101AL RECOV-EPARLE (UG/L AS FF) 40 1100 4500 1400 1300	DIS- SOLVED (1167L AS FE)	TOTAL PECOV- FRANLE (UG/L AS PR) 3 2 5 2 4	NIS- SOLVED (UG/L AS PB)	NESE - TOTAL RECOV-ERABLE (UG/L AS MN) 5700 770 470 1000 1400
OCT 11 NOV 07 DEC 09 JAN 14 FFB 03 APR 01 MAY 14 JUL 09	TOTAL RECOV-FRABLE (UG/L AS CO) 55 13 R 19 23	DIS- SOLVEN (UG/L AS CO)	TOTAL MECOV- ERABLE (UG/L AS CU) 10 10 10	D15- SOLVED (1/67/L AS CU) 10 0	101AL RECDY-EMARLE (UG/L AS FE) 40 1100 4500 1400 1300	DIS- SOLVED ((1967L AS FE) 170 70 40	TOTAL PECOV- FRANLE (UG/L AS PR) 3 2 5 2 4	NIS- SOLVED (UG/L AS PB)	NESE - TOTAL RECOVERABLE (UG/L AS MN) 5700 770 470 1000 1400

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518700 \sim TIOGA RIVER AT TIOGA JUNCTION. PA.

WATER QUALITY DATA. WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975

DATE	MANGA- NESF+ DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS MG)	MERCURY OIS- SOLVED (UG/L AS HG)	SFLF- NIUM: TOTAL (UG/L AS SE)	SELE- NIUM. DIS- SOLVED (UG/L AS SE)	SILVER. TOTAL RECOV- ERARLE (UG/L AS AG)	SILVFR. DIS- SOLVED (UG/L AS AG)	71NC+ TOTAL RECOV- ERARLE (UG/L AS ZN)	ZINC+ DIS- SOLVED (UG/L AS ZN)
oct									
11		< 4.5		5		0		530	
07 DEC		٠.5		0		0		120	
09 JAN		٠.5		0		9		60	
14 FEB		<.5		0		0		90	
03		<.5		0		0		180	
MAR 05	1300		<.5		1		n		170
4PR 01	930		<.5		0		0		100
MAY 14	530		1.3		0		0		30
JUN 10	770		<.5		0		0		40
09	1590		<.5		o		0		100
AUG 06	3000								210
SFP 11	2100								200

WATER QUALITY DATA. WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	STREAM- FLOW• INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCÉ (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN. DIS- SOLVED (MG/L)	OXYGEN+ DIS- SOLVED (PER- CENT SATUR- ATION)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L AS CACO3)
OCT									
07 NOV	1330	401	247	6.6	13.0	9.8	92	.1	6.0
11 DEC	1300	632	183	6.8	10.5	10.4	93	•1	4.0
10 JAN	1515	1410	121	6.5	1.5	13.2	94	- 1	6.0
07 FEB	1330	E322	208	7.1	.0	13.6	93	.1	7.0
05 MAR	1035	E382	163	7.2	.0	13.5	92	•1	5.0
09	1110	747	146	6.6	1.0	13.4	94	•1	3.0
06	1145	654	145	6.5	6.0	11.6	93	•1	6.0
06 JUN	1120	272	177	7.0	13.5	9.6	91	-1	5.0
02	1000	568	159	7.0	14.0	9.6	92	•1	3.0
13	1115	168	230	6.7	16.5	8.8	89	.1	6.0
11 SEP	0945	375	182	6.7	18.0	8.8	93	.1	3.0
08	0925	58	364	6.7	18.0	8.6	90	.0	7.0

Table 24.--Water-quality data collected from September 1973 to September 1978--Continue of 01518700 - TIOGA RIVER AT TIOGA JUNCTION, PA.

WATER	OUALITY.	DATA.	WATER	YFAR	OCTOBER	1975	TO	SEPTEMBER	1976

BATE	AS	CAR- I BONATE (MG/L AS CO3)	ALRA- D LINITY IMG/L AS	DIS- SOLVED (MG/L	SULFATE DIS- SOLVED (M8/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	NETRO- BEN+ NETRATE TOTAL (MG/L AS N)	NITHO- GEN, NITRITE TOTAL (MG/L AS N)	N1THO~ BEH; HOZ+NO3 TOTAL (MB/C AS H)
001		_							
NOV	5.7	0	13	8.4	79	6.0	.77		
DEC	32	0	25	A.1	44	5.5	.27		
10 Jan	56	0	50	13	27	5.5	.36	.02	* 44
07 FEB	\$5	0	19	8.5	65	6.0			
85	18	0	13	3.8	50	5.5			
MAR 09	15	0	10	6.0	46	4.0	.59		
APR 06	18	q	15	4.1	39	4.4	~-		
MAY 66	24	D	20	3.8	51	5.1	~-		~÷
JUN	34	0	28	5.4	37	5.0	.24	, e i	. 24
JUL 13	27	0	22	8.6	78	4.8			
AUG 11	21	0	17	6.7	57	5.3			
SEP 08	9	0	7	2.9	159				
va	y	· ·	,	2.4	154	7.5	. 35	.01	•3*
	NITRO- BEN, AMMONJA TOTAL (MG/L	MITRO- GEN: DRGANIC TOTAL (MG/L	NITRO- GEN-AM- MONIA + ORGANIC TOTAL (NG/L	NITRO- GEN. TOTAL (MG/L	PHOS- PHORUS. TOTAL (MG/L	PHOS- PHORUS, ORTHO, TOTAL (MG/L	SEDI- MENT. SUS- PENDED	SEDI- MENT DIS- CHARGE. SUS- PENDED	
DATE	AS NI	AS N)	AS NI	AS N)	AS P)	AS P)	(MG/L)	(T/DAY)	
9CT 97	*11	.27	.38	1.2	.04	.02	36	39	
11		.39	•41	.68	.06	.04	50	85	
DEC 10		.38	-+1	.79	.18	.02	266	1010	
JAN 97		~-					46	64	
FEB 05							11		
WAR		-18	.24	.83	-01	.01	21	41	
APM 06			•••	*-			16	21	
MAY		*-		•-	••		12	9.2	
96									
10F 05***		-18	.50	.45	.04	.01	12	19	
13					**	~-	8	4.4	
11 SEP							16	17	
08	05	.00	-05	.41	.01	.01	€0	~-	
	DATE	T TME	ALIIM- INUM, DIS- COLVEI (UG/L AS ALI	(UG/L	015- 0 50LVF 106/L	ZINC DIS- D SOLVE LUGA	0		
	0CT 07	1330	170	, 5	ia 250	0 2	0		
	11.	1300	• • • • • • • • • • • • • • • • • • • •	, ,	10 94	0 50	90		
	10.	1515	. 41	,	0 36	0 2	20		

Table 24.- Water our livry data collected from September 1973 to September 1978: Continued 01516700 - T1064 RIVER AT T1064 JUNCTION, PA.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	STREAM- FLOW: INSTAN- TANEOUS (CES:	SPF- CIFTC CON- COCT- ANCE (MICPA- MOSS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGFN. DIS- SOLVED (MG/L)	DXYGFN, DIS- SOLVED (PER- CENT SATUR- ATION)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L AS CACO3)	RICAR- BONATE (MG/L AS HCO3)	CAR- RONATE (MG/L AS CO3)
0CT	1050	50	352	6.9	15.0	9.5	93	.0	2.0	20	0
NOA	-										
DEC	0950	291	196	6.6	1.0	13.2	93	.7	8.0	23	0
14	1545	1160	143	6.7	• 0	13.6	93	.1	5.0	33	0
12	1535	EINS	255	6.4	.0	12.4	85	.3	17	23	0
FEA 09	1445	£66	291	6.1	.0	12.6	86	.4	20	24	0
MAR 07	1325	1010	130	6.3	1.5	13.4	103	.1	6.0	10	0
VUE	_	424				10.0	99	.1	••0	16	0
13 May	1510	-	179	6.7	15.5			•			
02 MN	14-0	319	172	6.8	14.0	10.1	97	.1	5.0	18	0
0.5	1830	6.1	265	6.9	13.5	9.9	94	.1	6.0	18	0
96	1515	30	314	6.5	25.5	A. 1	98	.1	6.0	A	0
08	1645	134	206	7.7	26.0	8.6	105	. 1	3.0	56	0
SEP 15	1600	101	305	7.4	17.0	9.6	99	.1	4.0	44	0
DATE	ALKA- LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS- SOLVED (MG/L AS (1/2)	SULFATE DIS- SOLVED (MG/L AS SOA)	CHLO- RIDE. DIS- SOLVED (MG/L AS (L)	NITRO- GEN+ NITRATE TOTAL (MG/L AS N)	NITRO- GEN+ NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN• NITRITE TOTAL (MG/L AS N)	NITRO- GEN. NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN+ NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN+ NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN+ AMMONIA TOTAL (MG/L AS N)
OCT											
07 NOV	16	4.0	120	9.8							
10 DEC	19	9.2	59	6.3					•-		
14 JAN	27	11	48	8.8	.63		.01		.64		.04
12	19	15	82	8.1							
FEB 08	20	31	96	10							
MAR 07	6	8.0	35	4.7	.67		-01		.68		• 05
APR 13	13	5.1	53	5.3							
MAY 02	15	4.6	51	5.1							
JUN 09	15	3.6	91	8.3	.32		.00		.32		.01
JUL	7	4.0	120	8.3				••	•31		
AUG 08	46	1.8	65	9.9							
SEP 15	36	5.8	85	10		.31		.00			
	30		65	10				.00	**	• 31	

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518700 - 710GA RIVER AT TIOGA JUNCTION. PA.

			•		
WATER QUALITY DATA.	MAILM AFWH	CCTOBER 1976	10	PENIEMBEN	1917

DATE	NITRO- GEN+ AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN. ORGANIC TOTAL (MG/L AS N)	NITRO- GEN. DRGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN.AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN• TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS+ DIS- SOLVED (MG/L AS P)	PHOS- PHORUS. ORTHO. TOTAL (MG/L AS P)	SEDI- MENT. SUS- PENDED (MG/L)	SEDI~ MENT DIS~ CHARGE. SUS~ PENDED (T/DAY)
ОСТ											
07 NOV										EO	
10										14	11
DEC						.84	••		• • • • • • • • • • • • • • • • • • • •	12	38
la Jan		•16		.20		489	.03		.01	16	30
12										7	
FEB 00										10	
MAR											
07		.20		.25		.93	.03		.01	35	95
APR 13										44	50
MAY											
02										10	10
JUN 09		.07		.08		.40	.00		.00	9	2.4
JUL											_
06 AUG										2	.49
08										37	38
SEP											
15	.07		.25		.32			.00		40	11

WATER QUALITY DATA. WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICHO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN. DIS- SOLVED (MG/L)	OXYGEN+ DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM. FECAL. G.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL+ KF AGAR (COLS+ PER 100 ML)	HARD~ NESS (MG/L AS CACO3)
1505	549	210	6,3	12.5	10.6	99	к1	K15	78
1615	380	180	6.6	. 0	14.0	AG			71
1713	300		0.0	•••	14.0	70	•		
1715	3960	102	6.4	4.0	13.1	100	K4	740	37
1 7 4 6	1000	150							52
1/43	1020	130	7.0	10.5	4.4	79	110	30	32
1800	173	290	7.2	26.0	8.6	105		30	120
		2.2							
1920	65	340	1.2	22.0	9.6	109	100	• υ	140
1845	58	340	6.8	25.5	8.8	106	K11	28	150
1430	92	290	6.7	16.5	10.1	103	×2	85	140
	1505 1515 1715 1745 1800	TIME FLOW- INSTAN- TANEOUS (CFS) 1505 549 1515 380 1715 3960 1745 1050 1800 173 1920 65 1845 58	STREAM- CON- CON-	TIME TANEOUS CON- FLOW-	TIME TANEOUS MHOS) CON- 1505 549 210 6.3 12.5 1515 380 180 6.6 .0 1715 3960 102 6.4 4.0 1745 1050 150 7.0 18.5 1800 173 290 7.2 26.0 1920 65 340 7.2 22.0 1845 58 340 6.8 25.5	TIME TANEOUS TOO TOO TOO TOO TO TOO TO TO TOO TO TO	STREAM- CON-	STREAM- CON- PH TEMPER- DIS- SOLVED SOLVED FECAL O.T CON- FLOW O.T CENT CON- CON- CON- CON- CENT CON- CON-	STREAM- CON- CON-

DATE	HARD- NESS+ NONCAR- BONATE (MG/L CACO3)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L AS CACO3)	CALCTUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM. DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SONIUM AD- SORP- Tion Ratio	POTAS- SIUM. DIS- SOLVED (MG/L AS K)
oct									
27 FEB	70	•5	8.0	19	7.4	3.2	B	. 5	1.6
09 MAR	56	•1	6.0	19	5.6	4.0	11	.2	1.4
24	27	.2	10	10	2.9	2.4	15	.2	1.4
MAY 25	35	.1	6.0	14	4.2	3.2	11	.2	1.5
JUN 28	110	.0	3.0	28	11	5,3	9	.2	2.0
JUL 25	120	.1	3.0	35	13	7.0	10	.3	1.6
AUG	_			_					-
24 SEP	140	.1	4.0	37	15	6.7	8	• 2	2.3
28	130	.1	7.0	32	14	5.4	P	.2	1.4

Table 24.--Mater-quality data collected from September 1973 to September 1978--Continued 01518700 - TIOGA RIVER AT TIOGA JUNCTION. PA.

WATER QUALITY DATA. WATER YEAR OCTORER 1977 TO SEPTEMBER 1978

DATE	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACO3)	CARRON DIOXIDE DIS- SOLVED IMG/L AS CO21	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE. DIS- SOLVED (MG/L AS CL)	NITRO- GEN+ NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN+ NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN- NOS-NO3 DIS- SOLVED (MG/L AS N)
oct									
27	10	0	8	A.0	72	4.4	.45	.00	.45
FER		_							
09	18	0	15	7.2	51	5.4	.73	.00	.73
74	12	0	10	7.6	28	2.6	.52	.00	•52
MAY				-					
25	51	0	17	7.0	39	4.3	.26	.00	•26
JUN 28	16	0	13	1.6	100	7.7	.2?	.01	.23
JUL	• •	-	•-	•••	•		•••	•••	•• ,
25	27	0	55	2.7	110	A.9	.26	.01	.27
AtIG 24	16	0	13	4.1	140	8.7	.27	.00	
SEP	10	U	13	4.1	14"	n. r	•21	.00	•27
20	16	0	13	5.1	110	8.8	. 36	.00	. 36
DATE	NITRO- GEN. AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN: ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN+AM- MONIA + ORGANIC DIS- (MG/L AS N)	PHOS- PHORIIS, DIS- SOLVED (MG/L AS P)	PHYTO- PLANK- TON+ TOTAL (CELLS PER ML)	CHLORO- PHYLL A PHYTO- PLANK- TON. UNCORP. (UG/L)	CHLORO- PHYLL B PHYTO- PLANK- TON- UNCORR- (UG/L)	SEDI- MENT+ SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE. SUS- PENDED (T/DAY)
_		43 111	-3 11/	43 77	CEN MEI	(00/[/	100/6/	(MO/L)	1170417
OCT									
27 FER	.04	•55	.26	.00				17	25
19	.08	-17	.25	.00				6	6.2
MAR	*		•••	•••				J	0.2
24	.06	.51	.57	.00	1300	.000	.000	71	759
MAY 25						•••			
JUN	.01	.32	•33	.00	160	.000	.000	26	74
28					4100	.000	.000	1	.47
C	.01	.50	.21	.00	-100				
JUL	_							=	
JUL 25	.02	.20 .07	.09	.00	1300	.000	.000	•	1.6
JUL 25 AUG	-02	.07	.09	.00	1300	.000	.000	9	1.6
JUL 25	_							=	

Table 24.--Water-quality data collected from September 1973 to September 1978 .-- Continued 01518700 TIOGA RIVER AT TIOGA JUNCTION. PA. PHYTOPLANKTON ANALYSES. OCTORER 1977 TO SEPTEMPER 1978

Pi	HYTOPLANK	TON AN	ALYSES.	OCTORE	R 1977 T	O SEPT	Emblu 10	78				
DATE TIME		24.78 715		25+78 745		29.78 800		25.78 920		24.78 845		28•78 •30
TOTAL CELLS/ML	3	300		160	•	100	1	300		250		0
DIVERSITY: DIVISION .CLASSordeeFamilyGenus		0.5 0.5 0.5 0.7	:	1.0 1.0 2.2 2.2		0.4 0.4 0.9 0.9	1	n.a n.a n.a i.a		0.7 0.7 0.7 1.3		0.0 0.0 0.0 0.0
ORGANISM	CELLS /ML	PER- CENT	CFLLS /ML	PER- CENT	CELLS /ML	PER-	CELLS	PFR- CFNT	CELLS /ML	PFR- CENT	CELLS /4L	PER- CENT
841 0000UVV 1505-11 11 615.												
CHLOROPHYTA (GREEN ALGAE) •CHLOROPHYCEAE •CHLOROCOCCALES ••OOCYSTACEAE												
ANKISTRODESMUS		~		-	36	1		-		-		-
KIRCHNERIELLA		-		-		-	67	5		-		-
SELENASTRUM		-		-		-	89	7		-		-
SCENEDESMACEARSCENEDESMUSTETRASPORALES		•	32#	20	72	?		-		-		-
PALMELLACEAESPHAEROCYSTISVOLVOCALES		-	32#	50		-		-		-		-
CHLAMYDOMONADACEAECHLAMYDOMONASZYGNEMATALES		•	16	10	110	3	45	7		-		•
***DESMIDIACEAE		-		•		•		-	*45#	18		•
CHRYSOPHYTA **RACILLARIOPHYCEAE **CENTRALES ***COSCINODISCACEAE ***CYCLOTELLA		-	32#	50		-				•	**	
PENNALESACHNANTHACEAEACHNANTHES				-	3600₩	48	920#	71	160#	64	~-	-
CYMBELLACEAE				-	110	3	45	3		-		-
FRAGILAR1ACFAF		-		-	15	2	55	5		_		•
GOMPHONEMATACEAE	68	5		-		-		-		-		-
MERIDIONACENEMERIDIONNAVICULACENE	14	1		-		-		-		•		-
NAVICULA	41	3	48#	30	36	1	55	2	45#	18		-
***NITZSCHIACEAE ***NITZSCHIA ***SURIRELLACEAE	27	2		-	36	1	55	5		-		-
SURIRELLA CYANOPHYTA (BLUE-GREEN ALGAE) .CYANOPHYCEAE		-		-		-	\$5	\$		•		-
HORMOGONALES OSCILLATORIACFAE OSCILLATORIA	1200#	A9		•		-				_		-
EUGLENOPHYTA (EUGLENDIDS) .EUGLENOPHYCFAFEUGLENALESEUGLENACEAR												
EUGLENA TRACHELOMQWAS		-		-	36 	1 ~	55 55	5		:		:

NOTE: # - DOMINANT ORGANISMS EQUAL TO OR GREATER THAN 15% . - OBSERVED ORGANISM: MAY NOT HAVE REEN COUNTEDS LESS THAN 1/2%

Table 24.--Waher-quality data collected from September 1973 to September 1978---Continued 01518850 - COWANESQUE RIVER AT WESTFIELD, PA.

WATER QUALITY DATA

			SPE-				OXYGEN.					
			CIFIC				DIS-					
		STREAM-	CON-				SOLVED	ACIDITY		BICAR-		ALKA-
		FLOW.	DUCT-			OXYGEN.	(PER-	TOTAL	ACIDITY	BONATE	CAR-	LINITY
		INSTAN-	ANCE	PH	TEMPER-	DIS-	CENT	HEATED	(MG/L	(MG/L	RONATE	(MG/L
	TIME	TANEOUS	(MICRO-		ATURE	SOLVED	SATUR-	(MG/L	AS	AS	(MG/L	AS
DATE		(CFS)	MHOS)	(UNITS)	(DEG C)	(MG/L)	ATION)	AS H)	CACO31	HC031	AS CO3)	CACO31
SEP .	1072											
04	1330	6.8	204	6.9	27.0		175	_			_	
OCT		0.0	204	0.7	27.0	11.0	135			71	0	48
10	1625	7.7	162	8.5	17.5	10.3	107	.0	.0	68	2	57
NOV	•			•••	• • • • •			••	• •	0.5	-	31
07	1000	28	130	7.3	4.0	11.9	91	- 1		43	0	35
DEC											•	• •
12		63	114	6.9	1.5	13.4	96	- 1		31	0	25
JAN .												
09 FEB	1230		113	6.4	• 0	14.2	97	-1		31	0	23
14	0945		109	6.9	_		•	_			_	
MAR	0,43		109	0.7	.5	13.6	96	.0		30	0	25
14	0945	77	95	6.8	.5	13.6	94	.0		24	0	17
APR								•••			•	• • •
03	0830	272	88	6.4	2.5	12.7	93	.0		18	0	14
HAY												
50 NUL	0908	51	107	7.4	7.5	12.6	105	.0		37	0	28
13	0920	8.0	120	7.4	14.5			_				
JUL	0720	0.4	138	7.4	14.5	10.2	99	• 0	12	60	0	46
18	0920	7.4	143	7.4	19.0	9.4	100	.0	9.0	1 56	٥	
AUG					.,	,,,	.00	• • •	7.0	20	v	46
15	0930	3.1	154	7.5	18.0	9.5	100	.0		70	0	59
							NITRO-					
	CARBON		CHLO-	NITRO-	NITRO-	NITRO-	GEN+AM-			PHOS-		SEDI-
	DIOXIDE	SULFATE	RIDE.	GEN.	GEN.	GEN.	HONIA +	NITRO-	PHOS-	PHORUS.	SEDI-	MENT DIS-
	015-	DIS-	DIS-	NITRATE	AMMONIA	ORGANIC	ORGANIC	GEN.	PHORUS.	ORTHO.	MENT.	CHARGE.
	SOLVED	SOLVED	SOLVED	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	SUS-	Sus-
	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L						
DATE	AS C02)	A5 504)	AS CL)				(MG/L	(MG/L	(MG/L	(MG/L		
650				AS N)	AS NI	AS NI	(MG/L AS N)	AS N)	(MG/L AS P)	(MG/L AS P)	PENDED (MG/L)	PENDED
SEP . 1	17/3			AS N)							PENDED	PENDED
OCT	1.4	22			AS N)	AS N)	AS N)	AS NI	AS P)	AS PI	PENDED (MG/L)	PENDED (T/DAY)
	14	53	19	AS N)							PENDED	PENDED
	-	23 14	19	.18	AS N)	.32	AS N)	45 Ni -71	AS P)	AS P)	PENDED (MG/L)	PENDED (T/DAY)
10	.4				AS N)	AS N)	AS N)	AS NI	AS P)	AS PI	PENDED (MG/L)	PENDED (T/DAY)
10 NOV 07	-		19	.18	AS N)	.32	AS N)	45 Ni -71	.06	.04 .01	PENDED (MG/L)	PENDED (T/DAY) .29
10 NOV 07	.4 3.4	14	19 10 5.0	.18 .07	.21 .03	.32 .19	.53 .22	.71 .29	AS P)	AS P)	PENDED (MG/L)	PENDED (T/DAY)
10 NOV 07 DEC 12	.4 3.4 6.2	14	19	.18	.03	.32	.53	.71 .29	.06	.04 .01	PENDED (MG/L)	PENDED (T/DAY) .29
10 NOV 07 DEC 12	.4 3.4 6.2	14 18 18	19 10 5.0 2.0	.18 .07 .43	.03 .06	.32 .19 .24	.53 .22 .30	.71 .29 .73	.06 .07 .01	.04 .01 .01	PENDED (MG/L) 16 2 1	PENDED IT/DAY) .29 .04
10 NOV 07 DEC 12 JAN , 1	.4 3.4 6.2	14	19 10 5.0	.18 .07	.21 .03	.32 .19	.53 .22	.71 .29	.06 .02	.04 .01	PENDED (MG/L) 16 2	PENDED IT/DAY) .29 .04
10 NOV 07 DEC 12 JAN , 1	3.4 6.2 1974 20	14 18 18	19 10 5.0 2.0 4.0	.18 .07 .43 .48	.21 .03 .06 .08	.32 .19 .24 .19	.53 .22 .30 .27	.71 .29 .73 .75	.06 .07 .01	.04 .01 .01 .01	PENDED (MG/L) 16 2 1 E0	PENDED (T/DAY) .29 .04 .08
10 NOV 07 DEC 12 JAN 1 09 FEB 14	.4 3.4 6.2	14 18 18	19 10 5.0 2.0	.18 .07 .43	.03 .06	.32 .19 .24	.53 .22 .30	.71 .29 .73	.06 .07 .01	.04 .01 .01	PENDED (MG/L) 16 2 1	PENDED (T/DAY) .29 .04
10 NOV 07 DEC 12 JAN , 1 09 FEB 14	3.4 6.2 1974 20	14 18 18	19 10 5.0 2.0 4.0	.18 .07 .43 .48	.21 .03 .06 .08	.32 .19 .24 .19 .20	.53 .22 .30 .27	.71 .29 .73 .75	.06 .02 .01 .01	.04 .01 .01 .01	PENDED (MG/L) 16 2 1 E0 2	.29 .04 .08
10 NOV 07 DEC 12 JAN , 1 09 FEB 14 MAR 14	.4 3.4 6.2 1974 20 6.0 6.1	14 18 18 16 16	19 10 5.0 2.0 4.0 5.5 2.5	.18 .07 .43 .48 .70	.03 .06 .08 .10	.32 .19 .24 .19	.53 .22 .30 .27	.71 .29 .73 .75	.06 .07 .01	.04 .01 .01 .01	PENDED (MG/L) 16 2 1 E0	PENDED (T/DAY) .29 .04 .08
10 NOV 07 DEC 12 JAN 1 09 FEB 14 MAR 14 APR 03	3.4 6.2 1974 20 6.0	14 18 18 16	19 10 5.0 2.0 4.0 5.5	.18 .07 .43 .48 .70	.03 .06 .08 .10	.32 .19 .24 .19 .20	.53 .22 .30 .27	.71 .29 .73 .75	.06 .02 .01 .01	.04 .01 .01 .01	PENDED (MG/L) 16 2 1 E0 2	PENDED LT/DAY) .29 .04 .08
10 NOV 07 DEC 12 JAN - 1 09 FEB 14 MAR 14 APR 03 MAY	.4 3.4 6.2 1974 20 6.0 6.1	14 18 18 16 16 14	19 10 5.0 2.0 4.0 5.5 2.5	.18 .07 .43 .48 .70 .80	.21 .03 .06 .08 .10	.32 .19 .24 .19 .20 .36	.53 .22 .30 .27 .30 .40	.71 .79 .73 .75 1.0 1.2 .73	.06 .07 .01 .01 .01 .01	.04 .01 .01 .01 .01 .01	PEMDED (MG/L) 16 2 1 E0 2 6 E0 2)	PENDED (T/DAY) .29 .04 .08 15
10 NOV 07 DEC 12 JAN , 1 09 FEB 14 MAR 14 APR 03 MAY	.4 3.4 6.2 1974 20 6.0 6.1	14 18 18 16 16	19 10 5.0 2.0 4.0 5.5 2.5	.18 .07 .43 .48 .70	.03 .06 .08 .10	.32 .19 .24 .19 .20 .36	.53 .22 .30 .27 .30 .40	.71 .79 .73 .75 1.0	.06 .02 .01 .01 .01	.04 .01 .01 .01 .01	PEMDED (MG/L) 16 2 1 E0 2 6	PENDED (T/DAY) .29 .04 .08
10 NOV 07 DEC 12 JAN . 1 09 FEB 14 MAR 14 APR 03 MAY 02 JUN	.4 3.4 6.2 1974 20 6.0 6.1 11	14 18 18 16 16 14 27	19 10 5.0 2.0 4.0 5.5 2.5 2.0	.18 .07 .43 .48 .70 .80 .45	.21 .03 .06 .08 .10 .04 .05	.32 .19 .24 .19 .20 .36 .23	.53 .22 .30 .27 .30 .40 .28	.71 .29 .73 .75 1.0 1.2 .73	.06 .02 .01 .01 .01 .01 .01	.04 .01 .01 .01 .01 .01 .01	PEMDEO (MG/L) 16 2 1 E0 2 6 E0 2)	PENDED (T/DAY) .29 .04 .08 15
10 NOV 07 DEC 12 JAN , 1 09 FEB 14 MAR 14 APR 03 MAY	.4 3.4 6.2 1974 20 6.0 6.1	14 18 18 16 16 14	19 10 5.0 2.0 4.0 5.5 2.5	.18 .07 .43 .48 .70 .80	.21 .03 .06 .08 .10	.32 .19 .24 .19 .20 .36	.53 .22 .30 .27 .30 .40	.71 .79 .73 .75 1.0 1.2 .73	.06 .07 .01 .01 .01 .01	.04 .01 .01 .01 .01 .01	PEMDED (MG/L) 16 2 1 E0 2 6 E0 2)	PENDED (T/DAY) .29 .04 .08 15
10 NOV 07 DEC 12 JAN 1 09 FEB 14 MAR 14 APR 03 MAY 02 JUN 13 JUL	.4 3.4 6.2 1974 20 6.0 6.1 11	14 18 18 16 16 14 27	19 10 5.0 2.0 4.0 5.5 2.5 2.0	.18 .07 .43 .48 .70 .80 .45	.21 .03 .06 .08 .10 .04 .05	.32 .19 .24 .19 .20 .36 .23 .23	.53 .22 .30 .27 .30 .40 .2A .26	.71 .29 .73 .75 1.0 1.2 .73 1.3 .71	.06 .07 .01 .01 .01 .01 .01	.04 .01 .01 .01 .01 .01 .01	PENDED (MG/L) 16 2 1 E0 2 6 E0 2) 2	PENDED (T/DAY) .29 .04 .08 15 .26
10 NOV 07 DEC 12 JAN , 1 09 FEB 14 APR 03 MAY 02 JUN 13 JUL 18	.4 3.4 6.2 20 6.0 6.1 11 2.4 3.8	14 18 18 16 16 14 27 18 12	19 10 5.0 2.0 4.0 5.5 2.5 2.0 4.0	.18 .07 .43 .48 .70 .80 .45 1.0	.21 .03 .06 .08 .10 .04 .05	.32 .19 .24 .19 .20 .36 .23	.53 .22 .30 .27 .30 .40 .28	.71 .29 .73 .75 1.0 1.2 .73	.06 .02 .01 .01 .01 .01 .01	.04 .01 .01 .01 .01 .01 .01	PEMDEO (MG/L) 16 2 1 E0 2 6 E0 2)	PENDED (T/DAY) .29 .04 .08 15
10 NOV 07 DEC 12 JAN , 1 09 FEB 14 APR 02 JUN 13 JUL 18	.4 3.4 6.2 20 6.0 6.1 11 2.4	14 18 18 16 16 14 17 18	19 10 5.0 2.0 4.0 5.5 2.5 2.0 3.2	.18 .07 .43 .48 .70 .80 .45 1.0	.21 .03 .06 .08 .10 .04 .05	.32 .19 .24 .19 .20 .36 .23 .23	.53 .22 .30 .27 .30 .40 .2A .26	.71 .29 .73 .75 1.0 1.2 .73 1.3 .71	.06 .07 .01 .01 .01 .01 .01	.04 .01 .01 .01 .01 .01 .01	PENDED (MG/L) 16 2 1 E0 2 6 E0 2) 2	PENDED (T/DAY) .29 .04 .08 15 .26

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518860 - MILL CREEK AT WESTFIELD, Pa.

WATER QUALITY DATA

DATE	TIME	STREAM- FLOW+ INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN. DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	ACIDITY TOTAL HEATED IMG/L AS HI	ACIDITY (MG/L AS CACO31	BICAR- RONATE (MG/L AS HCO3)	CAP- BONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACO3)
SEP . 1												
04 OCT	1445	5.0	234	8.7	29.0	11.2	143	.0	.0	83	4	65
10	1540	4.2	213	9.4	17.5	11.0	115	.0	• 0	76	11	72
07	1045	9.5	173	7.5	5.0	12.0	94	.0		64	0	52
12	1150	18	170	6.7	2.5	13.2	97	.0		52	0	44
JAN , 1	1155		226	6.3	.5	14.0	97	. 0		63	0	51
FEB 14	1020		177	6.2	.5	13.8	96	•5		59	0	49
MAR 14	1035	23	147	7.3	.5	13.6	94	.0		44	0	35
APR 03	0940	59	129	6.5	3.0	12.8	95	.0		34	0	30
02	1000	9.5	198	8.5	9.0	13.4	116	.0	.0	69	3	56
JUN 13	1030	1.2	368	8.2	15.5	10.0	99	.0		124	6	107
JUL 16	0955	2.0	254	8.6	20.0	10.4	113	.0	•0	91	9	75
AU6 15	1030	2.0	275	8.5	19.0	11.0	117	.0	.0	88	9	83
						••••	•••	••	••	00	•	,
DATE	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO+ RIDE+ DIS+ SOLVED (MG/L AS CL)	NITRO- GEN• NITRATE TOTAL (MG/L AS N)	NITRO- GEN+ AMMONIA TOTAL (MG/L AS N)	NITRO- GEN. ORGANIC TOTAL (MG/L AS N)	NITRO~ GEN+AM~ MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN: TOTAL (MG/L AS N)	PHOS- PHORUS. Total (MG/L AS P)	PHOS- PHORUS. ORTHO. TOTAL (MG/L AS P)	SEDI- MENT. SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE: SUS- PENDED (T/DAY)
DATE SEP • 1	DIOXIDE DIS- SOLVED (MG/L AS CO2)	DIS- SOLVED (MB/L	RIDE. DIS- SOLVED (MG/L	GEN+ NITRATE TOTAL (MG/L	GEN: AMMONIA TOTAL (MG/L	GEN. ORGANIC TOTAL (MG/L	GEN.AM- MONIA . ORGANIC TOTAL IMG/L	GEN: TOTAL (MG/L	PHORUS. TOTAL (MG/L	PHORUS. ORTHO. TOTAL (MG/L	MENT. SUS- PENDED	MENT DIS- CHARGE, SUS- PENDED
	DIOXIDE DIS- SOLVED (MG/L AS CO2)	DIS- SOLVED (MB/L	RIDE. DIS- SOLVED (MG/L	GEN+ NITRATE TOTAL (MG/L	GEN: AMMONIA TOTAL (MG/L	GEN. ORGANIC TOTAL (MG/L	GEN.AM- MONIA . ORGANIC TOTAL IMG/L	GEN: TOTAL (MG/L	PHORUS. TOTAL (MG/L	PHORUS. ORTHO. TOTAL (MG/L	MENT. SUS- PENDED	MENT DIS- CHARGE, SUS- PENDED
SEP . 1 04 OCT 10	DIOXIDE DIS- SOLVED (MG/L AS CO2)	DIS- SOLVED (MG/L AS SO4)	RIDE, DIS- SOLVED (MG/L AS CL)	GEN+ NITRATE TOTAL (MG/L AS N)	GEN: AMMONIA TOTAL (MG/L AS N)	GEN, ORGANIC TOTAL (MG/L AS N)	GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN. TOTAL (MG/L AS N)	PHORUS. TOTAL (MG/L AS P)	PHORUS. ORTHO. TOTAL (MG/L AS P)	MENT. SUS- PENDED (MG/L)	MENT DIS- CHARGE, SUS- PENDED (T/DAY)
SEP . 1 04 OCT 10 NOV 07	DIOXIDE DIS- SOLVED (MG/L AS CO2)	DIS- SOLVED (MG/L AS SO4)	RIDE, DIS- SOLVED (MG/L AS CL)	GEN• NITRATE TOTAL (MG/L AS N)	GEN+ AMMONIA TOTAL (MG/L AS N)	GEN+ ORGANIC TOTAL (MG/L AS N)	GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN: TOTAL (MG/L AS N)	PHORUS. TOTAL (MG/L AS P)	PHORUS. ORTHO. TOTAL (MG/L AS P)	MENT+ SUS- PENDED (MG/L)	MENT DIS- CHARGE, SUS- PENDED (T/DAY)
SEP . 1 04 0CT 10 NOV 07 DEC 12	DIOXIDE 015- 50LVED (MG/L AS CO2) 1973 .3 .1 3.2	DIS- SOLVED (MG/L AS SO4) 27	RIDE. DIS- SOLVED (MG/L AS CL)	GEN. NITRATE TOTAL (MG/L AS N)	GEN- AMMONIA TOTAL (MG/L AS N) -21	GEN+ ORGANIC TOTAL (MG/L AS N)	GEN.AM- MONIA + ORGANIC TOTAL (MG/L AS N) .65	GEN: TOTAL (MG/L AS N) .85	PHORUS. TOTAL (MG/L AS P) .11	PHORUS. ORTHO. TOTAL (MG/L AS P)	MENT. SUS- PENDED (MG/L)	MENT DIS- CHARGE, SUS- PENDED (T/DAY)
SEP . 1 04 OCT 10 NOV 07 DEC 12 JAN . 1	DIOXIDE 015- 50LVED (MG/L AS CO2) 1973 .3 .1 3.2	DIS- SOLVED (MG/L AS SO4) 27 17	RIDE, DIS+ SOLVED (MG/L AS CL) 15	GENONITRATE TOTAL (MG/L AS N) .20 .09	GEN• AMMONIA TOTAL (MG/L AS N) -21 -03	GEN+ ORGANIC TOTAL (MG/L AS N)	GEN•AM- MONIA • ORGANIC TOTAL (MG/L AS N) .65 .26	GEN+ TDTAL (MG/L AS N) .85 .37	PHORUS. TOTAL (MG/L AS P) -11	PHORUS. ORTHO. TOTAL (MG/L AS P) .09 .02	MENT. SUS- PENDED (MG/L)	MENT DIS- CHARGE. SUS- PENDED (T/OAY) .13
SEP . 1 04 OCT 10 NOV 07 DEC 12 JAN . 1 099 FEB	DIOXIDE DIS- SOLVED (M6/L AS CO2) 1973 .3 .1 3.2	DIS- SOLVED (MG/L AS SO4) 27 17 20	RIDE, DIS+ SOLVED (MG/L AS CL) 15 14 10	GEN• NITRATE TOTAL (MG/L AS N) .20 .09 .36	GEN- AMMONIA TOTAL (MG/L AS N) -21 -03 -14	GEN. ORGANIC TOTAL (MG/L AS N) .44 .25 .31	GEN•AM- MONIA • ORGANIC TOTAL (MG/L AS N) .65 .28 .45	GEN- TOTAL (MG/L AS N) .85 .37 .81	PHORUS. TOTAL (MG/L AS P) -11 -03 -08	PHORUS. ORTHO. TOTAL (MG/L AS P) .09 .02 .06 .04	MENT SUS- PENDED (MG/L)	MENT DIS- CHARGE. SUS- PENDED (T/OAY) .13
SEP . 1 04 OCT 10 NOV 07 DEC 12 JAN . 1 09 FEB 14 MAR	DIOXIDE	DIS- SOLVED (MG/L AS SO4) 27 17 20 24	RIDE - DIS - SOLVED (MG/L AS CL) 15 14 10	GEN- NITRATE TOTAL (MG/L AS N) .20 .09 .36	GEN- AMMONIA 107AL (MG/L AS N) -21 -03 -14	GEN. ORGANIC 107AL (MG/L AS N) .44 .25 .31	GEN-AM-MONIA - ORGANIC TOTAL (MG/L AS N) -65 -26 -45 -48	GEN- TOTAL (MG/L AS N) .85 .37 .81	PHORUS. TOTAL (MG/L AS P) -11 -03 -08 -05 -06	PHORUS. ORTHO: 101AL (MG/L AS P) .09 .02 .06 .04	MENT - SUS- PENDED (MG/L) 10 26 10 E0	MENT DIS- CHARGE, SUS- PENDED (T/OAY) .13 .29 .26
SEP . 1 04 OCT 10 MOV 07 DEC 12 JAN . 1 09 FEB 14 MAR 14 APR	DIOXIDE DIS- SOLVED (MG/L AS CO2) 1973 .1 3.2 17 17 51 60	DIS- SOLVED (MG/L AS SO4) 27 17 20 24 24	RIDE- DIS- SOLVED (MG/L AS CL) 15 14 10 23	GEN- NITRATE TOTAL (MG/L AS N) .20 .09 .36 .61	GEN- AMMONIA 107AL (MG/L AS N) -21 -03 -14 -10 -27	GEN- ORGANIC 1077L (MG/L AS N) .44 .25 .31 .38	GEN-AM-MONIA . ORGANIC TOTAL (MG/L AS N) .65 .28 .45 .48 .60 .71	GEN- TOTAL (MG/L AS N) .85 .37 .81 1.1	PHORUS. TOTAL (MG/L AS P) .11 .03 .08 .05	PHORUS. ORTHO: ORTHO: TOTAL (MG/L AS P) .09 .02 .06 .04 .06	NENT- SUS- PENDED (MG/L)	MENT D1S- CHARGE, SUS- PENDED (T/OAY) .13 .29 .26
SEP . 1 04 OCT 10 NOV 07 JAN . 1 DEC 12 JAN . 1 D9 FEB 14 MAR 14 APR 03 MAY 02	DIOXIDE 01S- SOLVED (MG/L AS CO2) 1973 .1 3.2 17 17 60 3.5	DIS- SOLVED (MG/L AS SO4) 27 17 20 24 24 21	RIDE- DIS- SOLVED (MG/L AS CL) 15 14 10 23 12 6.0	GEN- NITRATE TOTAL (MG/L AS N) .20 .09 .36 .61 .80 .80	GEN- AMMONIA TOTAL (MG/L AS N) -21 -03 -14 -10 -27 -23	GEN- ORGANIC TOTAL (MG/L AS N) .44 .25 .31 .38 .33	GEN-AM- MONIA . ORGANIC TOTAL (MG/L AS N) .65 .28 .45 .48 .60 .71	GEN- TOTAL (MG/L AS N) .85 .37 .81 1.1	PHORUS. TOTAL (MG/L AS P) .11 .03 .08 .05 .12 .10	PHORUS. ORTHOD. TOTAL (MG/L AS P) .09 .02 .06 .04 .06 .10	MENT- SUS- PENDED (MG/L) 10 26 10 E0 5	MENT DIS- CHARGE, SUS- PENDED (T/DAY) .13 .29 .26
04 04 05 06 07 09 09 10	DIOXIDE 015- 50LVED (MG/L AS CO2) 1973 .3 .1 3.2 17 974 51 60 3.5	DIS- SOLVED (MG/L AS SO4) 27 17 20 24 24 21 17	RIDE- DIS- SOLVED (MG/L AS CL) 15 14 10 10 23 12 8.0	GEN- NITRATE TOTAL (MG/L AS N) .20 .09 .36 .61 .80 .80 .77	GEN- AMMONIA TOTAL (MG/L AS N) -21 -03 -14 -10 -27 -23 -17	GEN- ORGANIC TOTAL (MG/L AS N) .44 .25 .31 .38 .33 .48	GEN-AM-MONIA ORGANIC TOTAL (MG/L AS N)	GEN- TOTAL (MG/L AS N) .85 .37 .81 1.1 1.4 1.5	PHORUS. TOTAL (MG/L AS P) -11 -03 -08 -05 -16 -17 -10 -14	PHORUS. ORTHOD TOTAL (MG/L AS P) .09 .02 .06 .04 .06 .10 .06	NENT- SUS- PENDED (MG/L) 10 26 10 E0 5	MENT DIS- CHARGE, SUS- PENDED (T/DAY) .13 .29 .26 1.7
SEP . 1 04 OCT 10 NOV 07 JAN . 1 DEC 12 JAN . 1 D9 FEB 14 MAR 14 APR 03 MAY 02	DIOXIDE DIS- SOLVED (MG/L AS CO2) 1973 3.2 17 17 51 60 3.5 17	DIS- SOLVED (MG/L AS SO4) 27 17 20 24 24 21 17 20 25	RIDE- DIS- SOLVED (MG/L AS CL) 15 14 10 10 23 12 8.0 5.0	GEN- NITRATE TOTAL (MG/L AS N) .20 .09 .36 .61 .80 .80 .77 1.0	GEN- AMMONIA TOTAL (MG/L AS N) -21 -03 -14 -10 -27 -23 -17 -09	GEN- ORGANIC TOTAL (MG/L AS N) .44 .25 .31 .38 .33 .48	GEN-AM- MONIA . ORGANIC TOTAL (MG/L AS N) .65 .28 .45 .45 .60 .71 .53 .50	GEN- TOTAL (MG/L AS N) .85 .37 .81 1.1 1.4 1.5 1.3	PHORUS. TOTAL (MG/L AS P) -11 -03 -08 -05 -16 -17 -10 -14	PHORUS. ORTHO: TOTAL (MG/L AS P) .09 .02 .06 .04 .06 .10 .05 .08	NENT- SUS- PENDED (MG/L) 10 26 10 E0 5 F0 27	MENT DIS- CHARGE, SUS- PEMBED (T/DAY) .13 .29 .26 1.7 4.0

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01518870 - COMANESQUE RIVER AT COMANESQUE. PA.

WATER QUALITY DATA

						'JUALITY U						
UATE	TIME	STHEAM- FLOW+ INSTAN- TANFOUS (CFS)	SPE- CIFIC CON- OUCT- ANCE (MICHO- MHOS)	PH (UNITS)	TEMPER- ATURF (DEG C)	OXYGEN+ DIS- SOLVED (MG/L)	OXYGEN. DIS- SOLVED (PER- CENT SATUR- ATION)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L AS CACO3)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACO3)
SEP . 1	1973											
04 OCT	1545	15	395	8.6	30.5	9.2	155	.0	.0	103	0	73
10	1445	16	389	8.7	17.0	8.7	90	• 0	.0	108	3	89
0/ DEL	1140	50	170	7.5	5.0	12.3	96	.0		55	0	47
12 JAN , 1	1250 1974	117	148	6.8	2.5	13.6	100	.0		42	٥	35
09 FŁB	1115		228	6.4	• 0	13.6	93	•5		49	0	42
14 Mak	1045		149	6.6	.5	14.0	97	• 1		38	0	33
14 APH	1130	170	145	7.2	1.0	13.5	95	• 1		35	0	55
EU YAM	1025	540	114	6.5	3.0	12.5	93	•0		27	0	55
0< JUN	1100	76	212	8.3	9.0	12.4	107	• 0	• 0	46	0	36
13	1130	15	267	8.5	17.0	11.4	118	.0	.0	82	4	71
lo	1030	12	469	8.0	21.0	7.6	84	•1		102	0	81
15	1120	7.6	572	7.8	20.0	8.4	91	•1	•-	130	0	110
DATE	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS+ SOLVED (MG/L AS SO4)	CHLO- FIDE+ DIS- SOLVED (MG/L AS CL)	NITRO- GEN+ NITRATE TOTAL (MG/L AS N)	NITRO- GEN+ AMMONIA TOTAL (MG/L AS N)	NITRO- GEN+ ORGANIC TOTAL (MG/L AS N)	NITRO- GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN+ TOTAL (MG/L AS N)	PHOS- PHORUS. TOTAL (MG/L AS P)	PHOS- PHORUS+ ORTHO- TOTAL (MG/L AS P)	SEDI- MENT. SUS- PENDED (MG/L1	SEDI- MENT DIS- CHARGE. SUS- PENDED (T/DAY)
SEP . 1	DIOXIDE DIS- SOLVED (MG/L AS CO2)	CIS+ SOLVED (MG/L AS SO4)	PIDE+ DIS- SOLVED (MG/L AS CL)	GEN+ NITRATE TOTAL (MG/L AS N)	GEN+ AMMONIA TOTAL (MG/L AS N)	GEN+ ORGANIC TOTAL (MG/L AS N)	GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS+ ORTHO. TOTAL (MG/L AS P)	MENT. SUS- PENDED (MG/L)	MENT DIS- CHARGE. SUS- PENDED (T/DAY)
5EP + 1 04	DIOXIDE DIS SOLVED (MG/L AS CO2)	DIS+ SOLVED (MG/L AS SO4)	FIDE+ DIS- SOLVED (MG/L AS CL)	GEN+ NITRATE TOTAL (MG/L AS N)	GEN+ AMMONIA TOTAL (MG/L AS N)	GEN+ ORGANIC TOTAL (MG/L AS N)	GEN.AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PHORUS, TOTAL (MG/L AS P)	PHORUS+ ORTHO. TOTAL (MG/L AS P)	MENT. SUS- PENDED (MG/L)	MENT DIS- CHARGE. SUS- PENDED (T/DAY)
SEP + 1 04 OCT 10	DIOXIDE DIS SOLVED (MG/L AS CO2) 1973	015- 50LVED (MG/L AS 504)	FIDE+ DIS- SOLVED (MG/L AS CL)	GEN+ NITRATE TOTAL (MG/L AS N)	GEN+ AMMONIA TOTAL (MG/L AS N)	GEN+ ORGANIC TOTAL (MG/L AS N) -49	GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N) .84	GEN. TOTAL (MG/L AS N) 1.1	PHORUS, TOTAL (MG/L AS P) .14	PHORUS+ ORTHO. TOTAL (MG/L AS P) .08	MENT. SUS- PENDED (MG/L)	MENT DIS- CHARGE. SUS- PENDED (T/DAY)
SEP + 1 04 OCT 10 NOV 07 DEC	DIOXIDE DIS SOLVED (MG/L AS CO2) 1973	015- 50LVED (MG/L AS 504) 54 29	FIDE, DIS- SOLVED (MG/L AS CL) 56 54	GEN- NITRATE TOTAL (MG/L AS N) .29 .11	GEN+ AMMONTA TOTAL (MG/L AS N) +35 +02	GEN. ORGANIC TOTAL (MG/L AS N)	GEN•AM- MONIA • ORGANIC TOTAL (MG/L AS N) •84 •21	GEN. TOTAL (MG/L AS N)	PHORUS. TOTAL (MG/L AS P) .14 .01	PHORUS. ORTHO. TOTAL (MG/L AS P) .00	MENT, SUS- PENDED (MG/L) 11	MENT DIS- CHARGE. SUS- PENDED (T/DAY) .45
SEP . 1 04 OCT 10 NOV 07 DEC 12 JAN . 1	DIOXIDE DIS SOLVED (MG/L AS CO2) 1973 -4 -4 2.A	015- 50LVED (MG/L AS 504) 54 29 20	FIDE, DIS- SOLVED (MG/L AS CL) 56 54 12	GEN• NITHATE TOTAL (MG/L AS N) .29 .11 .50	GEN+ MMONTA TOTAL (MG/L AS N) -35 -0? -1H	GEN- ORGANIC TOTAL (MG/L AS N) -49 -19 -25	GEN•AM- MONIA • ORGANIC TOTAL (MG/L AS N) .84 .21 .43	GEN- TOTAL (MG/L AS N) 1-1 .32 .93	PHORUS. TOTAL (MG/L AS P) -14 -01 -03	PHORUS. ORTHO. TOTAL (MG/L AS P) .08 .00 .02	MENT. SUS- PENDED (MG/L) 11 3	MENT DIS- CHARGE. SUS- PENDED (T/DAY) .45
SEP + 1 04 OCT 10 NOV 07 DEC 12 JAN + 1 09	010×10F 01S 50LVED (MG/L AS CO2) 1973 .4 .4 .2.8	DIS+ SOLVED (MG/L AS SO4) 54 29 20 20	PIDE+ DIS- SOLVED (MG/L AS CL) 56 54 12 9.0	GEN- NITHATE TOTAL (MG/L AS N) -29 -11 -50 -57	GEN+ AMMONIA TOTAL (MG/L AS N) -35 -02 -14 -11	GEN+ ORGANIC TOTAL (MG/L AS N) -49 -19 -25	GEN•AM- MONIA ORGANIC TOTAL (MG/L AS N) -84 -21 -43 -30	GEN+ TOTAL (MG/L AS N) 1-1 .32 .93 .87	PHORUS. TOTAL (MG/L AS P) -14 -01 -03 -03	PHORUS- ORTHO- TOTAL (MG/L AS P) .08 .00 .02 .01	MENT. SUS- PENDED (MG/L) 11 3 1 E0	MENT DIS- CHARGE. SUS- PENDED (T/DAY) .45 .13
SEP + 1 04 - 0 0CT 10 - 0 NOY 07 - 0 12 - 0 JAN + 1 09 - 1 FEH 14 - 0	010×10F 01S 50LVED (MG/L AS CO2) 1973 -4 -4 -2.8 11	CIS- SOLVED (MG/L AS SO4) 54 29 20 20 26	FIDE, DIS- SOLVED (MG/L AS CL) 56 54 12 4.0 25	GEN- NITHATE TOTAL (MG/L AS N) .29 .11 .50 .57	GEN+ AMMONIA TOTAL (MG/L AS N) -35 -02 -14 -11 -52	GEN- ORGANIC TOTAL (MG/L AS N) -49 -19 -25 -19	GEN.AM- MONIA - ORGANIC TOTAL (MG/L AS N) -84 -21 -43 -30 1.0	GEN- TOTAL (MG/L AS N) 1-1 .32 .93 .87 1-A	PHORUS, TOTAL (MG/L AS P) -14 -01 -03 -04 -05	PHORUS- ORTHO- TOTAL (MG/L AS P) .00 .02 .01 .03	MENT- SUS- PENDED (MG/L1 11 3 1 E0 2	MENT DIS- CHARGE. SUS- PENDED (T/OAY) .45 .13
SEP + 1 04 OCT 10 DCT 10 DEC 12 JAN + 1 09 FEH 14 MAH 14 APK	010×10F 01S 50LVED (MG/L AS CO2) 1973 -4 -4 -2.A 11 1974 31 15 3.5	CIS- SOLVED (MG/L AS SO4) 54 29 20 20 26 19	FIDE, DIS- SOLVED (MG/L AS CL) 56 57 12 4.0 25	GEN- NITHATE TOTAL (MG/L AS N) .29 .11 .50 .57 .40 .57	GEN+ AMMONIA TOTAL (MG/L AS N) -35 -02 -14 -11 -52 -14	GEN- ORGANIC TOTAL (MG/L AS N) -49 -19 -25 -19 -52 -46	GEN.AM-MONIA - ORGANIC TOTAL (MG/L AS N) -84 -21 -43 -30 1.0 -64	GEN- TOTAL (MG/L AS N) 1-1 .32 .93 .87 1-A 1.3	PHORUS. TOTAL (MG/L AS P) -14 -01 -03 -03 -04 -05	PHORUS- ORTHO TOTAL (MG/L AS P) .00 .02 .01 .03 .03	MENT- SUS- PENDED (MG/L) 11 3 1 E0 2	MENT DIS- CHARGE. SUS- PENDED (T/OAY) .45 .13 .13
04 0CT 10 NOV 07 DEC 12 JAN 11 09 FEH 14 MAH 14 APR 03 MAY	OIOXIDE DIS SOLVED (MG/L AS CO2) 1973 -4 -4 -2.A 11 1974 -31 15 -3.5	CIS- SOLVED (MG/L AS SO4) 54 29 20 20 26 19	FIDE, DIS- SOLVED (MG/L AS CL) 56 54 12 9.0 25 11	GEN- NITHATE TOTAL (MG/L AS N) -29 -11 -50 -57 -80 -70 -57	GEN- AIROPMA AIROPMA (MG/L AS N) -35 -07 -14 -11 -57 -14 -24	GEN- ORGANIC TOTAL (MG/L AS N) -49 -19 -25 -19 -52 -46 -36	GEN.AM-MONIA - ORGANIC TOTAL (MG/L AS N) -84 -21 -43 -30 1.0 -64 -60	GEN- TOTAL (MG/L AS N) 1-1 .32 .93 .87 1-8 1.3	PHORUS, TOTAL (MG/L AS P) -14 -01 -03 -03 -04 -05 -14	PHORUS- ORTHO TOTAL (MG/L AS P) .00 .02 .01 .03 .03	MENT- SUS- PENDED (MG/L) 11 3 1 E0 2 6	MENT DIS- CHARGE. SUS- PENDED (T/DAY) .45 .13 .13 4.6
SEP . 1 04 OCT 1U NOV 07 DEC 12 JAN . 1 09 FEH 14 APK 03 MAY 02 JUN	OIOXIDE DIS SOLVED (MG/L AS CO2) 1973 -4 -4 2.8 11 1974 31 15 3.5	CIS- COLVED (MG/L AS 504) 54 29 20 26 19 17 18 26	FIDE: DIS- SOLVED (MG/L AS CL) 56 57 12 9.0 25 11 4.0	GEN- NITHATE TOTAL (MG/L AS N) -29 -11 -50 -57 -80 -70 -57 1.0	GEN- AMMONIA TOTAL (MG/L AS N) -35 -02 -14 -11 -52 -14 -24 -15	GEN- ORGANIC TOTAL (MG/L AS N) -49 -19 -25 -19 -72 -46 -36 -48	GEN•AM-MONIA • OFGANIC TOTAL (MG/L AS N) • 84 • .21 • .43 • .30 • .64 • .60 • .63 • .98	GEN- TOTAL (MG/L AS N) 1-1 .32 .93 .87 1-A 1.3	PHORUS. TOTAL (MG/L AS P) -14 -01 -03 -03 -04 -05 -14 -04	PHORUS- ORTHO TOTAL (MG/L AS P1 .00 .02 .01 .03 .03 .03	MENT- SUS- PENDED (MG/L) 11 3 1 E0 2 6 10 32	MENT DIS- CHARGE. SUS- PENDED (T/OAY) .45 .13 .13 4.6
04 04 04 10 07 07 DEC 12 JAN 11 09 FEH 14 MAN 14 APR 04 JUN 13 JUL	OIOXIDE DIS SOLVED (MG/L AS CO2) 1973 -4 -2.A 11 1974 31 15 3.5 14	CIS- COLVED (MG/L AS SO4) 54 29 20 26 19 17 18 26 23	FIDE, DIS- SOLVED (MG/L AS CL) 56 57 12 4.0 25 11 4.0 23	GEN- NITRATE TOTAL (MG/L AS N) -29 -11 -50 -57 -80 -70 -57 1.0 -10	GEN- AMMONIA TOTAL (MG/L AS N) -35 -02 -1H -11 -52 -1H -24 -15 -34	GEN- ORGANIC TOTAL (MG/L AS N) .49 .19 .25 .19 .52 .46 .36 .48	GEN•AM- MONIA - ORGANIC TOTAL (MG/L AS N) -84 -21 -43 -30 1.0 -64 -60 -63 -98	GEN- TOTAL (MG/L AS N) 1-1 .32 .93 .87 1-A 1-3 1-2 1-6 1-1	PHORUS. TOTAL (MG/L AS P) -14 -01 -03 -04 -05 -05 -14 -04 -03	PHORUS- ORTHO TOTAL (MG/L AS P) .08 .00 .02 .01 .03 .03 .03 .04 .02	MENT- SUS- PENDED (MG/L) 11 3 1 E0 2 6 10 32 1	MENT DIS- CHARGE, SUS- PENDED (T/OAY) .45 .13 .13 4.6 47
04 04 05 NOY 07 DEC 12 JAN 11 14 MAN 14 APN 05 JUN 13	OIOXIDE DIS SOLVED (MG/L AS CO2) 1973 -4 -4 2.8 11 1974 31 15 3.5	CIS- COLVED (MG/L AS 504) 54 29 20 26 19 17 18 26	FIDE: DIS- SOLVED (MG/L AS CL) 56 57 12 9.0 25 11 4.0	GEN- NITHATE TOTAL (MG/L AS N) -29 -11 -50 -57 -80 -70 -57 1.0	GEN- AMMONIA TOTAL (MG/L AS N) -35 -02 -14 -11 -52 -14 -24 -15	GEN- ORGANIC TOTAL (MG/L AS N) -49 -19 -25 -19 -72 -46 -36 -48	GEN•AM-MONIA • OFGANIC TOTAL (MG/L AS N) • 84 • .21 • .43 • .30 • .64 • .60 • .63 • .98	GEN- TOTAL (MG/L AS N) 1-1 .32 .93 .87 1-A 1.3	PHORUS. TOTAL (MG/L AS P) -14 -01 -03 -03 -04 -05 -14 -04	PHORUS- ORTHO TOTAL (MG/L AS P1 .00 .02 .01 .03 .03 .03	MENT- SUS- PENDED (MG/L) 11 3 1 E0 2 6 10 32	MENT DIS- CHARGE. SUS- PENDED (T/OAY) .45 .13 .13 4.6

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01519000 - TROUPS CHEEK AT KNOXVILLE, PA.

					WATER	QUALITY F	ATA					
DATE	3417	STRFAM- FLOW. INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRU- MHOS)	PH,	TEMPER- ATURE (DEG C)	UXYGEN. OIS- SOLVED (MG/L)	OXYGEN+ DIS~ SOLVED (PEH~ CENT SATUR- ATION)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L AS CACO3)	BICAR- BONATE (MG/L AS HCO3)	CAR+ RONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CAC33)
SEP .	1973											
04 OCT	1645	6.5	516	8.6	30.0	9.7	158	• 0	• 0	43	2	69
10	1320	5.3	239	6.2	16.9	10.7	107	.0		116	1	97
07 DEC	1310	25	252	7.6	5.0	14.2	95	•0		90	0	75
13 JAN ,	0900	44	191	7.2	.5	14.3	99	• 0		65	0	51
09	1025		1 +4	6.5	.0	14.4	99	•2		63	0	52
FEB 14	1125		140	6.2	.5	14.2	99	.1		49	0	40
MAR 14	1745	109	140	7.4	3.5	12.A	96	.1		44	0	35
APR 03	1145	312	124	6.1	4.5	12.5	96	.0		32	0	27
MAY 02	1530	39	169	8.6	13.0	12.0	113	.0	.0	66	•	55
JUN 13	1230	5.6	213	8.0	21.0			.0		-92	5	86
JUL 18	1100	3.7	232	8.7	22.0	10.0	114	.0	.0	102	2	85
AUG 15	1240	2.6	219	8.5	24.0	10.6	125	.0	.0	88	5	84
DATE	CARBON DIOXIDE DIS- SOLVED (MG/L AS COS)	SCLFATE DIS= SOLVED (MG/L AS SO4)	CHLO- HIDE. DIS- SOLVED (MG/L AS CL)	NITRO GEN+ NITRATE TOTAL (MG/L AS N)	NITHO- GEN- AMMONIA TOTAL (MG/L AS N)	NITRO- GEN+ ORGANIC TOTAL (MG/L AS N)	NITRO- GEN•AM- MONIA + ORGANIC TUTAL (MG/L AS N)	NITRO- GEN: TOTAL (MG/L AS N)	PHOS- PHORUS. TOTAL (MG/L AS P)	PHOS- PHORUS: ORTHO: TOTAL (MG/L AS P)	SEDI- MENT. SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE. SUS- PENDED (T/DAY)
SEP .	1973											
04 OCT	• ?	30	6.6	.20	• 115	-61	.57	.86	-01	.01	13	.23
10	1.2	55	15	• 116	•02	•32	. 34	1.0	-01	.01	5	.07
07 DEC	3.6	77	3.0	1.2	• 0.9	•68	.77	2.0	-01	.00	4	.24
13 JAN ,	ሳ.6 1974	26	8.0	*40	+04	.19	.23	1.1	•05	.00	ΕO	
09 FEB	35	26	6.5	1.6	•10	• 5.5	•35	2.1	• 0.5	.02	3	
14	49	20	7.5	.90	•02	.42	.44	1.3	•07	.02	15	
14 APH	2.8	16	5.0	1.4	• 06	. 13	.39	1.8	•11	.04	69	50
03	41	50	4.0	1.7	-14	•54	.68	2.4	•11	.05	63	53
02	.3	23	5.2	.20	٠0٩	•56	.34	•54	• 0 2	.00	1	•11
13	1.6	20	7.5	.50	•06	.21	.27	.77	.01	.00	1	•05

.34

.23

. 07

.28

.19

.34

.26

.01

.01

.00

.00

.00

.03

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued

01519500 - COWANESQUE RIVER AT NELSON. PA.

WATER QUALITY DATA, WATER YEAR OCTOBER 1972 TO SEPTEMBER 1973

DATE	TIME	STREAM- FLOM+ INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPÉR- ATURE (DEG C)	OXYGEN. DIS- SOLVED (MG/L)	OXYGEN. DIS- SOLVE') (PER- CENT SATUR- ATION)	ACIDITY TOTAL HEATED (MG/L AS H)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACO3)	CARRON DIOXIDE DIS- SOLVED (MG/L AS CO2)
SEP 05	1145	55	264	8.0	25.0	10.8	129	. 0	100	0	69	1.6
D, SEF	ATE AS	S- DIS VED SOL G/L (MG	DE• GE 5- NITA .VED TOT	N. GE PATE AMMO PAL TOT S/L (MG	N. GE ONIA ORGA 'AL TO' G/L (MC	TRO- GENE EN+ MONI ANIC ORGA TAL TO' G/L (MC	TA + NIT ANIC GE TAL TO 3/L (MG	EN. PHOI Tal to G/L (Mi	DS- PHO RUS+ OR TAL TO G/L (M	THO. ME! TAL SU! G/L PE!	S- SUS	NT S= RGE •
		25 Z	0	•61	•20	.63	.83	1.4	.12	.08	55	8.2
			WATER QU	IALITY DAT	A. WATER	YEAR OCT	DRER 1973	TO SEPTE	MRER 1974			
DATE	TIME	STREAM- FLOM+ INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UN1TS)	TEMPER- ATURE (DEG C)	OXYGEN. DIS- SOLVED (MG/L)	OXYGEN. DIS- SOLVED (PER- CENT SATUR- ATION)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L AS (ACO3)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CAC03)
0CT 10	1100	48	327	7.4	16.0	9.6	96			116	0	82
NOV 07	1415	129	220	7.8	4.5	12.6	97	.0		77	0	62
DEC 12	1615	317	179	7.2	5.0	13.6	99	.0		56	0	49
JAN 09	0920		224	6.8	.0	15.2	104	•2		64	0	55
FEB 14 MAR	1330		166	6.9	.5	14-1	98	.0		52	0	42
14	1615	319	171	7.2	4.0	13.2	101	• 0		44	0	39
03	1400	1430	133	6.4	7.0	12.4	101	.0		34	0	28
02	1630	190	195	8.9	15.0	11.4	112	.0	.0	68	9	51
13	1415	32	276	8.5	22.5			.0	.0	85	9	82
18	1415	29	310	9.3	27.5	11.4	142	.0	• 0	78	12	79
15	1355	17	364	8.7	26.0	10.8	132	• 0	.0	90	5	61
DATE	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE+ DIS- SOLVED (MG/L AS CL)	NITRO- GEN+ NITRATE TOTAL (MG/L AS N)	NITRO- GEN• AMMONIA TOTAL (MG/L AS N)	NITRO- GEN: ORGANIC TOTAL (MG/L AS N)	NITRO- GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN- TOTAL (MG/L AS N)	PHOS- PHORUS. TOTAL (MG/L AS P)	PHOS- PHORUS. ORTHO. TOTAL (MG/L AS P)	SEDI- MENT. SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE. SUS- PENDED (T/DAY)
10	7.4	28	9.8	-14	•31	.50	.81	.95	•0B	.04	5	.76
NOV 07 D&C	2.0	24	16	.59	.09	.35	.44	1.0	.05	.03	5	.70
12	5.7	25	16	•61	.03	.20	.23	.84	.06	.04	ΕO	
JAN 09 FEB	16	27	13	1.9	•17	. 15	.52	2.4	.05	.04	2	
14	10	20	12	.80	.14	.48	•62	1.4	.06	.04	15	
14	4.4	50	11	.99	.12	.32	.44	1.4	.03	.03	11	9.5
03	55	19	5.5	1.3	.10	.48	.5R	1.9	-10	.05	31	120
02	•5	55	13	.01	.09	. 33	• • 2	.52	.03	.01	1	.51
13	.5	31	24	. 36	•31	.56	.87	1.2	.04	.02	6	.52
18 AUG	•1	33	34	.02	-08	. 34	•42	.44	.07	.01	1	.04
15	. 3	36	47	-14	.19	.47	.66	.60	.04	.02	В	. 37

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01519500 - COMANESQUE RIVER AT NELSON. PA.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBEH 1976

DATE APR	TIME	STREAM- FLOW: INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN+ DIS+ SOLVED (MG/L)	OXYGEN- DIS- SOLVED (PER- CENT SATUR- ATION)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L AS CACO3)
06	1250		170	8.3	7.5	13,2	110		• 0
MAY 06	1215	139	506	A.2	14.5	10.8	105	.1	.0
JUN 02	1120	389	155	7.7	14.5	9.5	94	• 2	2.0
JUL 13	1200	77	258	7.9	16.5	9.3	94	.0	2.0
AUG 11	1025	80	286	A.2	19.5	9,3	100	.0	1.0
SEP	1025	16	393	8.3	18.5	10.2	108	.0	•0
08	1023	10		CARRON		CHLO-	NITRO-	NITRO-	NITRO-
	HICAR-	CAR-	ALKA- LINITY	DIOXIDE DIS-	SULFATE DIS-	RIDE. DIS-	GEN. NITRATE	GEN. NITPITE	GEN+ NO2+NO3
	BONATE (MG/L	CAR- BONATE	(MG/L	SOLVED	SOLVED	SOLVED	TOTAL	TOTAL	TOTAL
	AS	(MG/L	AS	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L
DATE	HC031	AS C03)	CACO3)	AS CO21	AS 5047	AS CL)	AS N)	AS N)	AS N)
APR 06			43						
MAY 96	68	0	57	.7	23	12			
JUN	63	0	55	2.0	16	5.1	.38	.03	• 41
JUL	97	0	80	2.0	32	12			
AUG			84	1.0	27	19			
11 5FP	102				43	39	.12	.03	•15
08	119	0	98	1.0	43	37	•••	•••	
	NITRO- GEN+ AMMONIA TOTAL (MG/L	NITRO- GEN. ORGANIC TOTAL IMG/L	NITRO- GEN+AM- MONIA + OHGANIC TOTAL (MG/L	NITRO- GEN+ TOTAL (MG/L	PHOS- PHORUS. TOTAL (MG/L	PHOS- PHORUS. ORTHO. TOTAL (MG/L	ALGAL GROWTH POTEN- TIAL * POTTLE TEST	SEDI- MENT. SUS- PENDED	SEDI- MENT DIS- CHARGE. SUS- PENDED
DATE	AS N)	AS N)	AS N)	AS NI	AS P)	AS P)	(MG/L)	(MG/L)	(T/DAY)
APR 06		~-					1.5		
MAY 06	••						.7	7	2.6
JUN	.04	.89	.93	1.3	.11	.03		116	152
JUL 13								4	.83
AUG 11								7	1.5
5FP 08	-03	.37	.40	.55	.03	•01		Εo	

Fable 24.--Water-quality data collected from September 1973 to September 1978--Continued 01519500 - COMANESQUE RIVER AT NELSON, PA.

WATER QUALITY DATA. WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	Y I ME	STREAM- FLOW. INSTAN- TANEOUS (CFS)	SPE+ CIFIC CON- DUCT- ANCE (HICPO- MHOS)	PH (UNITS)	TEMPFR- ATURE (DEG C)	OXYGEN. DIS- SOLVED (MG/L)	DXYGEN. DIS- SOLVED (PER- CENT SATUR- ATION)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY IMG/L AS CACO3)	BICAR- BONATE (MG/L AS HCO3)	CAH- RONATE IMG/L AS CO3)
OCT 07	1120	18	345	8.4	15.0	11.4	118	.0	• 0	117	1
NOA							98	.0		••	_
10 DEC	1045	115	550	8.0	1.0	13.9	94	• 0	2.0	73	0
15	0815		200	5.8	.0	13.6	93	.1	6.0	65	0
JAN 13	1015		270	6.8	. 0	12.6	86	•5	8.0	85	0
FER 08	1555		339	6.8	.0	12.7	R7	٠.	8.0	90	0
MAH 07	1410	490	136	7.1	1.5	13.6	97	.0	5.0	37	0
APR 13	1600	210	184	8.7	16.0	10.8	108	.0	.0	50	4
MAY 03	0845	133	198	7.2	10.5	11-1	99	. 1	4.0	63	0
JUN	0405		_		12.0	10.2	94	.1	3.0	HA.	0
10 JUL	-	193	294	7.7		-					_
07	0830	E1200	135	7.4	19.5	8.2	88	.1	5.0	41	0
09 SEP	0830	204	154	8.0	21.5	4.6	97	.0	7.0	73	0
16	0835	190	225	7.8	15.0	9.7	95	.1	3.0	74	0
DATE	ALKA- LINITY (PG/L AS CACO3)	CARBON DIUXIDE UIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE+ UTS- SOLVED (MG/L AS CL)	NITRO- GEN+ NITRATE TOTAL (MG/L AS N)	NITHO- GEN+ NITRATE OIS- SOLVED (MG/L AS N)	NITRO- GEN+ NITRITE TOTAL (MG/L AS N)	N1TRO- GEN+ NITRITF D1S- SOLVED (MG/L AS N)	NITRO- GEN+ NO2+NO3 TOTAL (MG/L A5 N)	NITRO- GEN+ NOZ+NO3 DIS- SOLVED (MG/L AS N)	NITHO- GEN+ AMMONIA TOTAL (NG/L AS N)
oct											
07	97	.8	43	49							
10	60	1.2	29	14							
DE.C 15	53	16	25	12	.75		-01		.76		.00
JAN 13	70	55	31	21					**		
FER 08 Mar	74	23	37	33							
07	30	4.7	18	7.0	.76		.04		.80		•06
APR 13	41	.7	23	11							
WAY 03	52	6.4	22	11							
JUN 10	72	2.8	27	26	.63		.04		.67		.09
JUL 07	34	2.6	13	5.3							
AUG 09	60	1.2	17	11							
SEP 16	61	1.9	20	15		.62		.01		.63	

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued

01519500 - COWANESQUE RIVER AT NELSON. PA.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	NITRO- GEN+ AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN. ORGANIC TOTAL (MG/L AS N)	NITRO- GEN. ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN-AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- (MG/L AS N)	NITRO- GEN+ TOTAL (MG/L AS N)	PHOS- PHORUS. TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHOPUS. ORTHO. TOTAL (MG/L AS P)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE. SUS- PENDED (T/DAY)
OCT											
07										ΕO	
10										7	2.2
DEC 15		.20		.20		.96	•02		.01	3	
JAN		•=•		• • • •		• 70	***			,	
13										F. 0	
FEB 08										,	
MAR										•	
07		• 35		.41		1.2	.04		.01	20	26
APR 13											2.3
MAY										-	- • •
03										4	1.4
JUN 10		•67		.76		1.4	•16		.01	130	68
JUL		•••		•,,		•••	•••		•••	•	
07										612	
AUG 09			_							28	15
SEP										27	19
16	.03		.41		.44			.13		57	29

Table 24.--Water-quality data collected from September 1973 to September 1978--Cantinued

01520000 - COWANESQUE RIVER NR. LAWRENCEVILLE. PA.

WATER QUALITY DATA, WATER YEAR OCTOBER 1972 TO SEPTEMBER 1973

DAT	E	TIME	STREAM- FLOW: INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN. DIS- SOLVED (PER- CENT SATUR- ATION)	TOTAL HEATED	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2)
SEP 05,	••	1345	70	241	8.1	27.0	11.2	136	.0	67	0	59	1.1
	DATE	(94)	FATE RII 5- DII LVED SOI B/L (MC	DE• GE	N. GE TATE AMMO TAL TOT	N. GI NIA ORGI AL TO	TRO- GENE EN: MONI ANIC ORGI TAL TO	IA + NI INIC G TAL TO 3/L (M		DS- PHOP RUS+ OR FAL TO B/L (M		T. CHAP	IT 5- 19E. 5- IDED
	SEP 05.		23	19	.45	.27	.56	.83	1.3	.20	.10	51	9.6
	V54.	••		_					TO SEPTE			21	7.0
DAT	E	TIME	STRFAM- FLOW, INSTAM- TANFOUS (CFS)	SPE+ CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN. DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)		ACIDITY (MG/L AS CACO3)	BICAR- BONATE (MG/L AS HCO3)	CAR- RONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACO3)
0CT	••	1740	63	309	9.0	18.0	10.6	112	.0	.0	91	12	85
06.	••	1510	148	553	7.8	5.0	12.1	95	.0		77	0	63
12.		1510	287	176	6.8	2.5	13.6	100	.0	1.0	47	o	38
JAN OH. FEB	••	1545	£170	205	6.4	.0	14.2	97	.1	4.0	59	0	48
14.	••	1430	F170	164	6.9	.5	14.4	100	. 2	4.0	50	0	41
MAH 14.	• •	1450	317	158	7.3	3.5	13.9	104	.1	4.0	52	0	43
03.	••	1625	1400	124	6.3	6.5	12.2	99	.0	2.0	30	0	25
MAY 02.		1530	215	189	9.1	15.5	13.2	131	.0	.0	64	6	57
13.		1535	E42	274	8.7	24.0			.0	.0	78	12	74
JUL 17.		1340	29	300	8.8	27.0	9.2	114	.0	.0	92	2	77
AUG 15.		1500	17	337	8.5	28.0	9.2	116	.0	.0	96	2	80
SEP	••	0930	30	347	7.8	21.0	9.0	100	.1	5.0	100	0	85
DAT	O	CAPBON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS+ SOLVED (MG/L AS SOA)	CHLO- RIDE. DIS~ SOLVED (MG/L AS CL)	NITRO- GEN: NITRATE TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN: ORGANIC TOTAL (MG/L AS N)	NITRO- GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN: TOTAL (MG/L AS N)	PHOS- PHORUS. TOTAL IMG/L AS P)	PHOS- PHORUS. ORTHO. TOTAL (MG/L AS P)	SEDI~ WENT. SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE. SUS- PENDED (T/DAY)
0CT 09.		.2	26	35	.05	.01	-16	.17	.72	.02	.02	FO	
NOV 06.		2.0	25	17	.54	.12	.29	••1	.95	.04	.02	9	3.6
DEC		12	25	16	.63	.03	-18	.21	.84	.06	.04	EO	••
JAN .80		38	26	14	1.0	.13	.38	•51	1.5	.04	.03	5	2.3
FER 1+.		10	20	12	.80	.08	•36	.44	1.7	.08	.04	ΕO	
MAR 14.		4.2	20	9.2	.84	.10	.28	.39	1.2	.04	.02	55	19
APH 03.		24	20	5.0	1.0	.12	.47	.59		.10	.05	52	197
MAY 02.		•1	21	12	•10	.08	.27	.35	.45	.03	.01	35	1.2
JUN 13.		.3	25	24	.27	•13	•31	.44	,71	.05	.01		.23
JUL 10.		.2	31	29	.07	•06	.27	.33	.40	•05	.01	5	.16
AUG		.5	35	3A	.09	.09	. 10	.39	.49	.03	.01	5	.23
SEP		2.5	13	39	.09	.04	. 74	.37		.02	.01	FO	

Table 24,--Water-quality data collected from September 1973 to September 1978--Continued ${\tt O1520000-COWANESQUE\ RIVER\ NR.\ LAWRENCEVILLED Pa.}$

MATER QUALITY DATA, MATER YEAR OCTORED 1974 TO SEPTEMBER 1975

	WAIT	CH GOWETTI	UA	AIEN ISAN	OCTORE"	. * . *		• • • •	
		STREAM- FLOW+ INSTAN-	SPE- CIFIC CON- DUCT- ANCE	рн	TEMPER-	OXYGEN. DIS- SOLVED	OXYGEN+ DIS- SOLVED UPER- CENT SATUR-	ACIDITY TOTAL HEATED (MG/L	ACIDITY (MG/L AS
DATE	TIME	TANEOUS (CFS)	(M]CHO- MHOS)	(UNITS)	(DEG C)	(MG/L)	ATTON)	AS H)	CAC03)
oct									
11	1010	31	352	7.9	9.0	11.4	9.8	• 0	2.0
07	1430	215	212	7.7	4.0	14,4	151	.0	6.0
DFC 10 JAN	0930	573	148	7.6	•0	13.8	95	.0	4.0
15 FEB	0930	417	157	7.1	•0			• 0	1.0
04	0945	F190	163	7.7	• 0	14.4	99	.0	4.0
MAR 06 Apr	9840	F2#0	164	7.4	1.0	12.8	90	.0	2.0
02	0900	304	144	7.8	3.5	12.0	90	.0	2.0
15	0900	261	164	A,3	14.0	10.2	98	. 1	• 0
JUN 10	1730	479	158	7.6	19.5	9.6	103	.0	3.0
10	0900	105	194	7.3	18.0	7.5	79	.0	4.0
AUG 07 SEP	0915	A >	310	7.8	17.5	9.6	100	.1	4.0
11	1455	42	305	A.A	27.0	11.2	127	• 0	.0
				CARRON	_	CHLO-	NITRO-	NITRO-	NITRO-
	BICAR-		ALKA-	DIOXIDE	SULFATE	RIDE.	GEN.	GFN+ NITPITF	GEN+ NO2+NO3
	BONATE	CAR-	LINITY	015-	015-	015-	NITRATE	TOTAL	TOTAL
	(MG/L	RONATE	(MG/L	SOLVED	SOLVED	SOLVED	(MG/L	(MG/L	(MG/L
	AS	(MG/L	AS	(MG/L	146/L	(MG/L	AS N)	AS N)	AS NI
DATE	HC03)	AS (03)	CACO31	45 0021	AS 5041	AS (L)	#3 #7	45 47	A3
0CT	107	0	90	2.2	35	37	.05		
40V 07	70	0	54	7.1	30	15	.34		
DEC 10	48	0	52	1.9	25	8.0	.81		
JAN 15	42	0	33	۲.3	26	9.0	1.0		
FEB	48	σ	19	1.5	21	10	.95		
MAR 06	44	0	39	2.8	26	10	1.2		
APR 02	44	0	37	1.1	25	9.5	.77		
MAY 15 Jun	55	0	45	.4	53	7.5	.09	.01	•1n
10	54	n	43	7.2	Su	6,5	.Al		
IO	66	0	5)	5.3	53	11	. 75		
07 SFP	110	0	90		29	21	.20		
11	92	5	88	.3	29	30	.05		

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01520000 - COMANESQUE RIVER NR. LAWRENCEVILLE. PA.

WATER QUALITY DATA. WATER YEAR OCTORER 1974 TO SEPTEMBER 1975

OATE	NITRG- GEN+ AMMONIA TOTAL (MG/L AS N)	NITRO- GEN+ ORGANIC TOTAL (MG/L AS N)	NITRO- GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GFN. TOTAL (MG/L 45 N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS. ORTHO. TOTAL (MG/L AS P)	SEDI- MENT. SUS- PENDED (MG/L)	SFDI- MENT DIS- CHARGE+ SUS- PENDED (T/DAY)
0CT	.05	•55	.21	. 12	.01	.00	FO	
NOV	•05	• • • •	• 21	. 12	.01	•110	F 0	
07	.00	. 35	. 35	.69	.04	.02	4	2.3
In	•09	-41	•50	1.3	.04	.03	А	15
15 FEA	.07	.55	.62	1.6	.06	.04	3	3.4
04	.09	.49	.57	1.5	.04	• 92	FO	
06	.04	• 36	.40	1.6	.04	•02	4	3.4
02	.00	.30	•30	1.1	.04	• 02	5	4.1
15	.00	.17	•17	.27	.02	.01	4	4.2
JUN 10	.01	.33	. 34	1.2	.04	.03	5	6.5
JUL 10 ≜UG	.09	.75	.83	1.6	.19	.09	77	25
07	.00	.26	.26	.47	.01	.01	€o	
11	.04	•21	.25	.30	•02	.01	FO	

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

		STREAM- FLOW+ INSTAN-	SPE- CIFIC CON- DUCT-	РН	TEMPER-	OXYGEN. DIS-	OXYGEN. DIS- SOLVED (PER- CENT	ACIDITY TOTAL HEATED	ACIDITY (MG/L
	TIME	TANEOUS	ANCE (MICRO+	PH	ATURE	SOLVED	SATUR-	(MG/L	AS
DATE	1145	(CFS)	MHOS)	(UNITS)	(DEG C)	(MG/L)	ATTON)	AS HI	CACO31
oct									
07 NOV	1430	155	241	7.2	14.0	10.2	98	.0	4.0
11	1435	521	182	7.1	10.5	10.3	92	•1	4.0
DEC 11	0810	452	168	7.2	1.0	12.9	91	.1	6.0
JAN 07	1430	£210	220	7.2	.0	14.4	99	.0	5.0
FEB 05	1145	E255	175	6.7	.0	13.8	95	.0	2.0
MAR									
09	1200	410	150	7.1	1.0	13.6	96	.0	1.0
06	1335	E320	165	9.1	8.0	16.1	135	.0	.0
MAY 06	1330	159	190	8.5	15.5	11.8	117	.1	.0
JUN 02	1225	428	152	7.3	15.5	9.0	89	.5	2.0
JUL									
13 AUG	1255	92	251	8.1	17.0	9.8	101	.0	1.0
11	1120	85	262	A.3	20.5	9.6	106	.0	• 0
SEP 08	1140	17	375	A.2	20.5	9.0	99	.0	1.0

Table 24.--Water-quality data collected from September 1973 to September 1978 Continued 01520000 - COMMESQUE RIVER NR. LAWNENCEVILLE. PA. WATER QUALITY DATA. WATER YEAR OCTORER 1975 TO SEPTEMBER 1976

NATE	HICAR- BONATE (MG/L AS HCO3)	CAR- BONATF (MG/L AS CO3)	LINITY (MG/L AS	CARRON DIOXIDE OJS- SOLVED (MB/L AS COZI	SULFATE DIS- SOLVED (MB/L AS SO+)	CMLO- RIDE, DIS- SOLVED (MG/L AS CL)	MITRO- GEN. MITRATF TOTAL (MG/L AS N)	NITRO- GEN+ HITPLIF FOTAL (MG/L AS N)	NITHO GEN. HUZ-NO TOTAL IMG/L AS NI
OCT									
07 NOV	83	0	71	A.4	54	15	1.2		-
II DFC	58	0	47	7.4	21	6.5	. 19		-
11	60	0	46	4.1	20	7.9	. 39	.01	. 4
JAN 07	70	0	55	7.1	27	14			-
FFB 05	55	0	65	18	25	16			-
MAR 09	44	o	35	5.6	52	7.5	.74		-
APR 06	44	4	46	•1	55	R.9			-
96	67	0	57	.3	21	8.6		-+	•
02	62	0	52	5.0	15	5.1	.49	.04	.4
JUL 13 AUG	98	٥	80	1.6	59	12		~-	-
11 SFP	103	0	85	.8	26	17			•
00	115	0	95	1.2	39	34	.00	.01	• •
DATE	NITRO GEN+ AMMONI TOTAL IMG/L AS NI	GEN+ A ORGANIC TOTAL IMG/L	MONEA	- NITRO	PHORUS TOTAL IMG/L	ORTHO TOTAL (MG/L	S. SED1~ D. MENT. SUS- PENDER		· ·
001									
07		.51	.5				03 14		, 4
11 0£c	0	4 .6	3 .6	7 1.0		17	10 10	152	
II		•2.	3 .2	٠	56 .0	96 .	02 11		
07 FER			-			- '	(-	
05.						'	F	, -	
09.		.20	6 • 3	5 1.1		03 .0	07 17) 13	
MAY				- •				1.	, 7
06. NUL				- ·			10		, 1
OF.		.7:	8 .R	3 1.5	3 •	18 .	05 19	1 551	
13.		-			- -		F		
11 SEP		-		-			F	,	
08.		11 .5	7 .7	a .:	29 .0	03 •	02 F	, .	

Table 24.--Water-quality data collected from September 1973 to September, 1978--Continued

01520000 - COMMESQUE RIVER NR. LAWRENCEVILLE. PA.

WATER THALITY DATA. WATER YEAR OCTORED 1976 TO SEPTEMBER 1977

OXYGEN.

Spr -

DATE	TIME	CTRFAVE FEI)#4 TNSTANE TBNFOIIS (CFS)	CTFTC CON- 1:0:CT- 4:NCF- (MTCPG- 40:03)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGFY. DIS- SOLVED (MG/I)	OKYGEN. OIS- SCLVEN CENT SATUR- ATION)	ACTOITY TOTAL HEATED (MG/L AS H)	ACINITY (MG/L A5 (ACO3)	RICAR- RONATE (MG/L AS HCO3)	CAY- BONATE (MG/L AS CO3)
nc t											
67 NOV	1215	21	116	4.4	15.5	10.1	100	• 0	• 0	117	1
10 DFC	1170	140	228	7.6	2.0	14.0	101	• 0	2.0	73	0
15	4-155	F 1 % 9	274	6.6	• 0	13.6	6.0	. 1	7.0	62	0
AP4"	0440	4 ()	145	7.0	2.0	13.6	9 1	• ^	2.0	37	n
14	u 150	255	1#4	4.2	13.0	11.4	111	• 0	1.0	54	n
03	1000	1:4	198	7.5	12.5	12.4	116	.2	A.0	54	0
<i>3:1</i> % 10•••	1110	·n1	114	4.0	12.5	10.1	44	• "	2.0	98	n
511t 67•••	1000	1020	171	1.5	19.5	7,9	45	.0	2.0	39	0
#46 09•••	10.10	212	201	4.3	22,5	4.7	105	• 0	.0	74	0
14	n Q g , i	ه ۹ نر	חרר	7.4	15.0	3.4	92	• 0	2.0	73	o
OATE	45 KA- £1+11Y (N-1/L AN C+CU4)	CAHON PTOKTOE UTSH NOLVEN (MG/L AS COZ)		CHLOH HIDE: HISH SOLVED (MG/L AS CL)	NTTO()- GENT NTTRATE INTAL (MG/L AS N)	41TPO~ GEN.* WITHATE DIS~ SOLVED (MG/L 45 M)	NITHO- GEN. NITRITE TOTAL (MG/I AS N)	NITPO- GEN. NITRITH OIS- SOLVEO (MG/L AS N)	N THO- GEN+ NO2+NO3 TOTAL (MG/L &S N)	NITHO- GEN+ NOZ+NOR DIS- SOLVED (MG/L AS N)	NITRO- GEN. AMMONIA TOTAL (MG/L AS N)
97	94	٠,	3.)	44							
LO	60	2.9	24	15							
0+C	71	25	26	12	.70		nη		.71		.00
04	12	4	1 4	9.1	.75		•02		.77		.05
400 14	44	.5	23	10							
MAY	••	2.0	21	1)							
93 VIV	HO.		26	21			.04		45		.11
JUL		1.6			.61						
07 4136	12	>.1	1+	5.1							
04 5FP	61	•6	16	∀. 0						.59	
14	6.0	1.5	21	14		.58		•01	-	• ~ •	
DATE	MTTYO- GENA AMMONTA OIN- SOLVEC (MG/L AS NI	METPO- GEN+ OPGANIC TOTAL (MG/L AS N)	NITHO- GEN+ UHGANIC DIS- NOLVED (MG/L AS N)	NTTHO- GEN+AM- MINTA + OPGANTO TOTAL (MG/L AS N)	NITPO- GEN+AM- MONIA + OPGANIC DIS- (MG/L AS N)	NIT40- GEN+ TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS: DIS- SOLVEN (MG/L AS P)	PHOST PHOPHIST OPTHOL TOTAL (MG/L as P)	SEDI- MENT. SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE: SUS- PENDED (T/DAY)
0CT 07										12	. 68
NOV 10				••						7	>.4
nrc 15		. 1 A		-14		. 40	.03		.01	14	
04		.46		.51		1.3	.ne		.02	17	34
APR 14											4.4
MAY 07											2.5
JUN 10***		.45		76		1.4	.08		.00	75	41
JIIL 07		•••		••						494	2740
AUG 69			••							25	14
SEP 1A	.01		•51		.54			40		67	3н
	• "	_	• .		• , •						

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01520500 - TJOGA RIVER AT LINDLEY NY

WATER QUALITY DATA. WATER YEAR OCTORER 1973 TO SEPTEMBER 1974

DATE	TIMF	STRFAM~ FLOW+ INSTAN- TAMFOUS (CFS)	SPE+ CIFIC CON+ DUCT+ ANCE (MICRO- MHOS)	PH (I)N[TS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVFD (MG/L)	OXYGEN. DIS- SOLVED (PER- CENT SATUR- ATION)	ACIDITY TOTAL HEATED (HG/L AS H)	ACIDITY IMG/L AS CACO31	BICAR- BONATE (MG/L AS HCO3)	CAR- RONATE (MG/L 45 CO3)	ALKA- LINITY (MG/L AS CACO3)
0CT	1825	182	269	6.8	17.0	10.2	105			48	0	41
NOV 86	1600	405	182	7.0	5.0	11.5	91	.0		38	0	31
DEC 11	1545	1630	148	6.7	2.5	12.7	93	.1	5.0	24	0	20
JAN 08	1450	440	200	6.8	.0	13.8	94	•2		32	0	27
FEB 14	1530	F500	153	6.7	.5	14.0	97	•1		35	0	26
44	1400	61160	143	6.7	2.0	13.4	97	•1		24	0	18
03	1710	3280	118	6.2	6.5	12.2	99	•0		24	0	50
MAY	1430	604	172	7.4	14.0	10.7	103	•0	3.0	36	0	33
NUC 	1430	172	216	7.2	20.0			.0		44	0	40
JUL 18	1245	119	269	7.2	24.0	9.0	106	.1	6.0	36	0	47
AUG					-							
15 5FP	1355	63	329	7.4	25.0	3.5	110	•0		42	0	34
13	1500	R3	342	7.4	74.0	8.4	99	•0		44	0	36
DATE	CARRON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SHLFATE DIS- SOLVED (MG/L AS 504)	CHLO+ PIDE+ DIS- SOLVED (MG/L AS CL)	NITRO- GEN+ NITRATE TOTAL (MG/L AS N)	NITRO- GEN. AMMONIA TOTAL (MG/L AS N)	NJTRO- GEN+ ORGANIC TOTAL (MG/L AS N)	NITHO- GEN-AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN+ TOTAL (MG/L AS N)	PHOS- PHORUS. TOTAL (MG/L AS P)	PHOS- PHORUS: DRTHO: TOTAL (MG/L AS P)	SEDI- WENT: SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE. SUS- PENDED (T/DAY)
ост	nioxide nis- solven (MG/L AS CO2)	DIS- 50E VED (MG/L AS 504)	PIDE+ DIS- SOLVED (MG/L AS CL)	GEN+ NITRATE TOTAL (MG/L AS N)	GEN. AMMONIA TOTAL (MG/L AS N)	GEN+ ORGANIC TOTAL (MG/L AS N)	GEN+AM- MONIA + ORGANIC TOTAL (MG/L AS N)	GEN+ TOTAL (MG/L AS N)	PHORUS. TOTAL (MG/L AS P)	PHORUS. DRTHO. TOTAL (MG/L AS P)	WENT. SUS- PENDED (MG/L)	MENT DIS- CHARGE+ SUS- PENDED (T/DAY)
0CT 09	DIOXIDE DIS- SOLVED (MG/L AS COZ)	DIS- 50E VED (MG/L AS 504)	PIDE. DIS- SOLVED (MG/L AS CL)	GEN+ NITRATE TOTAL (MG/L AS N)	GEN. AMMONIA TOTAL (MG/L AS N)	GEN+ ORGANIC TOTAL (MG/L AS N)	GEN.AM~ MONIA ORGANIC TOTAL (MG/L AS N)	GEN. TOTAL (MG/L AS N)	PHORUS. TOTAL (MG/L AS P)	PHORUS. DRTHO. TOTAL (MG/L AS P)	WENT: SUS- PENDED (MG/L)	MENT DIS- CHARGE. SUS- PENDED (T/DAY)
0CT 09 NOV 06 DEC	DIOXIDE DIS- SOLVED (MG/L AS CO2)	DIS- 50E VED (MG/L A5 504)	PIDE+ DIS- SOLVED (MG/L AS CL)	GEN+ NITRATE TOTAL (MG/L AS N) +08	GEN- AMMONIA TOTAL (MG/L AS N) -04	GEN+ ORGANIC TOTAL (MG/L AS N)	GEN.AM- MONIA + ORGANIC TOTAL (MG/L AS N) .20	GEN. TOTAL (MG/L AS N) -28	PHORUS. TOTAL (MG/L AS P) .03	PHORUS. DRTHO. TOTAL (MG/L AS P)	MENT. SUS- PENDED (MG/L)	MENT DIS- CHARGE. SUS- PENDED (T/DAY)
OCT 09 NOV 06 DEC 11	DIOXIDE DIS- SOLVED (MG/L AS CO2)	015- 50£ VED (MG/L A5 504) 61 49	PIDE • D15 - SOLVED (MG/L AS CL) 16 8-5 6-8	GEN. NITRATE TOTAL (MG/L AS N) .08	GEN- AMMONIA TOTAL (MG/L AS N) -04 -15	GEN, ORGANIC TOTAL (MG/L AS N) -16 -25	GEN-AM- MONIA - ORGANIC TOTAL (MG/L 45 NI .20 .41	GEN+ TOTAL (MG/L AS N) -28 -15	PHORUS. TOTAL (MG/L AS P) .07	PHORUS. DRTHD. TOTAL (MG/L AS P) .02 .02	SUS- PENDED (MG/L) 3	MENT DIS- CHARGE+ SUS- PENDED (T/DAY) 1.5
OCT 09 NOV 06 DEC 11 JAN 04 Fth	010X1DF 01S- 50LVFD (MG/L AS CO2) 12 6-1 7-7	015- 501 VED (MG/L AS 504) 41 49 75	PIDE • D15 = SOLVED (MG/L AS CL) 16 8 • 5 6 • 8	GENONITRATE TOTAL (MG/L AS N) .08 .34 .66	GEN- AMMONIA TOTAL (MG/L AS N) -04 -16 -04	GEN, ORGANIC TOTAL (MG/L AS N) .16 .25 .23	GEN-AM- MONIA - ORGANIC TOTAL (MG/L 45 N1 -20 -41 -27	GEN. TOTAL (MG/L AS N) .28 .15 .93	PHORUS. TOTAL (MG/L AS P) .03 .05	PHORUS. DRTHD. TOTAL (MG/L AS P) .02 .02 .05	MENT. SUS- PENDED (MG/L) 3 10 39	MENT DIS- CHARGE. SUS- PENDED (T/DAY)
OCT 09 NOV 06 DEC 11 JAN 04 Ft m 14	010×10F 015- 50LVFD (MG/L AS CO2) 12 6-1 7-7 8-1	01s- 50t VED (Mg/L AS 504) 41 49 35 46	PIDE - DIS - SOLVED (MG/L AS CL) 16 8.5 6.8	GEN- NITRATE 107AL (MG/L AS N) -08 -34 -06 1.0	GEN. AMMONIA TOTAL (MG/L AS N) -04 -16 -04 -13	GEN+ ORGANIC TOTAL (MG/L AS N) .16 .25 .23 .21	GEN-AM- MONIA - ORGANIC TOTAL (MG/L AS N) .20 .41 .27 .34	GEN. TOTAL (MG/L AS N) -28 -15 -93 1-3	PHORUS, TOTAL (MG/L AS P) +03 +05 +07 +03	PHORUS. ORTHO. TOTAL (MG/L AS P) .02 .02 .05 .01	MENT. SUS- PENDED (MG/L) 3 10 39 10	MENT DIS- CHARGE. SUS- PENDED (T/DAY) 1.5 11
OCT 09 NOV 0b DEC 11 JAN 0H FtH 14 MAH 14	0.0 x 1DF 0.1 x - 1 x -	71 (-) 71	PIDE- DIS- SOLVED (MG/L AS CL) 16 A-5 6-A 15	GEN- NITRATE 707AL (MG/L AS N) -08 -34 -06 I-0 -70	GEN. AMMONIA 107AL (MG/L AS N) -04 -16 -04 -13 -20	GEN+ ORGANIC TOTAL (MG/L AS N) -16 -25 -23 -21 -35	GEN.AM- MONIA . ORGANIC TOTAL (MG/L 45 N) .20 .41 .27 .34 .55	GEN- TOTAL (MG/L AS N) -28 -15 -93 1-3 1-2	PHORUS. TOTAL (MG/L AS P) .07 .05 .07	PHORUS. ORTHO. 101AL (MG/L AS P) .02 .02 .05 .01 .03	WENT. SUS- PENDED (MG/L) 3 10 39 10 E0	MENT DIS- CHARGE. SUS- PENDED (T/DAY) 1.5 11 172
OCT 09 NOV 06 DEC 11 JAN 0H FEH 14 APH 03	0.0 x 10 f 0.1 x - 10	71 (-) 71	PIDE- DIS- SOLVED (MG/L AS CL) 16 A-5 6-A 15	GEN- NITRATE 707AL (MG/L AS N) .08 .34 .66 [.0 .70 .77	GEN. AMMONIA TOTAL (MG/L AS N) -04 -16 -04 -13	GEN- ORGANIC TOTAL (MG/L AS N) -16 -25 -23 -21 -35 -18	GEN-AM- MONIA - ORGANIC TOTAL (MG/L AS N) .20 .41 .27 .34	GEN- TOTAL (MG/L AS N) -28 -15 -93 1-3 1-2 1-0	PHORUS. TOTAL (MG/L AS P) .03 .05 .07 .03 .05 .02	PHORUS. ORTHO. TOTAL (MG/L AS P) .02 .02 .05 .01 .03 .02	WENT- SUS- PENDED (MG/L) 3 10 39 10 60 22	MENT DIS- CHARGE. SUS- PENOED (T/DAY) 1.5 11 172 12 54
OCT 09 NOV 06 DEC 11 JAN 04 FtH 14 APH 03 MAY 02 JUN	0.0 x 1DF 0.1 x - 1 x -	715- 576 VED (MG/L) A5 504) 41 49 35 46 31 28 23	PIDE- DIS- SOLVED (MG/L AS CL) 16 8-5 6-8 15 10 5-4 4-0	GEN- NITRATE 707AL (MG/L AS N) .08 .34 .66 I.0 .70 .77	GEN. AMMONIA 107AL (MG/L AS N) -04 -16 -04 -13 -20	GEN- ORGANIC TOTAL (MG/L AS N) -16 -25 -23 -21 -35 -18 -45	GEN.AM- MONIA - ORGANIC TOTAL (MG/L 45 N) -20 -41 -27 -34 -55 -27 -61	GEN- TOTAL (MG/L AS N) -28 -15 -93 1-3 1-2 1-0	PHORUS. TOTAL (MG/L AS P) .03 .05 .07 .05 .07 .05 .07 .09 .09	PHORUS. ORTHO. 101AL (MG/L AS P) .02 .02 .05 .01 .03	WENT- SUS- PENDED (MG/L) 3 10 39 10 60 22 35	MENT DIS- CHARGE. SUS- PENDED (T/DAY) 1.5 11 172 12 54 310
OCT 09 NOV 06 DEC 11 JAN 04 14 APH 14 APH 03 MAY 02 JUN 13 JUL	0.0 x 10 f 0.1 x - 10	71 (-) 71	PIDE- DIS- SOLVED (MG/L AS CL) 16 A-5 6-A 15	GEN- NITRATE 707AL (MG/L AS N) .08 .34 .06 I.0 .70 .77 .70 .20	GEN. AMMONIA 707AL (MG/L AS N) -04 -16 -04 -13 -20 -09	GEN- ORGANIC TOTAL (MG/L AS N) -16 -25 -23 -21 -35 -18	GEN.AM- NONIA - ORGANIC TOTAL (MG/L 45 N) .20 .41 .27 .34 .55	GEN- TOTAL (MG/L AS N) -28 -15 -93 1-3 1-2 1-0	PHORUS. TOTAL (MG/L AS P) .03 .05 .07 .03 .05 .02	PHORUS. ORTHO. ORTHO. TOTAL (MG/L AS P) .02 .02 .05 .01 .03 .02	WENT- SUS- PENDED (MG/L) 3 10 39 10 60 22	MENT DIS- CHARGE. SUS- PENOED (T/DAY) 1.5 11 172 12 54
OCT 09 NOV 00 DEC 11 JAN 0H FEH 14 MAH 14 APH 03 MAY 02 JUN 13	0.0 x 10 f 0.1 x - 0.0 y - 0.0 x - 0.	715- 576 VED (MG/L) A5 504) 41 49 35 46 31 28 23	PIDE- DIS- SOLVED (MG/L AS CL) 16 8-5 6-8 15 10 5-4 4-0	GEN- NITRATE 707AL (MG/L AS N) .08 .34 .66 I.0 .70 .77	GEN. AMMONIA 707AL (MG/L AS N) -04 -16 -04 -13 -20 -09	GEN- ORGANIC TOTAL (MG/L AS N) -16 -25 -23 -21 -35 -18 -45	GEN.AM- MONIA - ORGANIC TOTAL (MG/L 45 N) -20 -41 -27 -34 -55 -27 -61	GEN- TOTAL (MG/L AS N) -28 -15 -93 1-3 1-2 1-0	PHORUS. TOTAL (MG/L AS P) .03 .05 .07 .03 .05 .02 .10	PHORUS. ORTHO: ORTHO: TOTAL (MG/L AS P) .02 .05 .01 .03 .02 .03	WENT- SUS- PENDED (MG/L) 3 10 39 10 60 22 35	MENT DIS- CHARGE. SUS- PENDED (T/DAY) 1.5 11 172 12 54 310
OCT 09 NOV 0b PEC 11 JAN 14 APH 14 APH 02 JUN 13 JUN 18	0.0 x IDF 0.1 x - 0.0	71 (PIDE- D1S- SOLVED (MG/L AS CL) 16 8-5 6-8 15 10 5-4 4-0 7-4	GEN- NITRATE 707AL (MG/L AS N) .08 .34 .06 I.0 .70 .77 .70 .20	GEN. AMMONIA 707AL (MG/L AS N) -04 -16 -04 -13 -20 -09 -16 -08	GEN- ORGANIC TOTAL (MG/L AS N) -16 -25 -23 -21 -35 -18 -45 -20	GEN.AM- MONIA . ORGANIC TOTAL (MG/L 45 N) .20 .41 .27 .34 .55 .27 .61 .28	GEN- TOTAL (MG/L AS N) -28 -15 -93 1-3 1-2 1-0 1-3 -48	PHORUS. TOTAL (MG/L AS P) .07 .05 .07 .03 .05 .02 .10 .03	PHORUS. ORTHOD TOTAL (MG/L AS P) .02 .05 .01 .03 .02 .03 .01	WENT- SUS- PENDED (MG/L) 3 10 39 10 E0 22 35	MENT DIS- CHARGE. SUS- PENDED (T/DAY) 1.5 11 172 12 54 310 16 1.9

Table 24.- Water-quality data collected from September 1973 to September 1978--Continued 01520500 - T1064 MINEW AT LINDLEY MY

WATER HUAL ATY DATA. WATER YEAR OCTORER 1973 TO SEPTEMBER 1974

		41 11			C 4 4 1 1 4		1460=	Culta I	CODE	15 ()	tuon.
		101			CANM		OTAL	COMALT:	440) . 101		TOTAL
				SENIC	PECI		FCOV-	HE CON-		0v-	MI COV-
				OTAL	FHA		HARLE	FPAHLE		HLF	FRARLE
	1146	(00		Mest	(116.		HGZL	(067)	all		(U6/L
11 40	1141			15 AS)	45		S (4)	45 (0)		City	AS FE
-7611			41.	13 #37	• • •	,	., .,	47 (11		City	
FER											
14	1530								-		
IA	1400								•		
44	1710								-		
02	14 10		700	3		0	fi	•	•	50	490
13	1430		.0	1		ti	< 1 n	•	•	10	180
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15	1.355		HU	0		6	0	1		0	7.0
41.0						"	-	-		••	
13	1500		⊬n	1		0	<10	21	י	10	150
				MANA							
			LE AD.	PIF SI		MERCURY			VFP.	7340	
		74/	TOTAL	101		TOTAL	SFL		7746	7 0 7 AL	
		IS LVFN	PFCOV-			PEARLE			COV-	#1 (0)	
		67I	(UGZE	1116,		CHENE	106		/44L *	FRAHL	
11#1		FFI	AS PA			AS HG)			AGI	(11G/L	
*1**											
la.	• •	20		•							
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0 4.	• •	to O		•			•			-	
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.404	••			•		•		-•	•	•	
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A6H. 1*) 1:	200	٠,٠		U	6	3.4	nn
1	••		,		- 11 17	• • •	•	.,	,,	,,	.,

WATER QUALITY DATA. WATER YEAR OCTORER 1974 TO SEPTEMBER 1975

200

			SPF -				OYYGEN.		
			CLFIC				D15-		
		STREAM-	CON-				SOLVED	ACIDITY	
		FLOW.	DUCT-			OXYGEN.	(PEP-	TOTAL	ACIDITY
		INSTAN-	ANCE	PH	TEMPER-	015-	CENT	HEATED	(MG/L
	TIME	TANEOUS	(MICRO-	F-11	ATURE	SOLVED	SATUR-		
0.4.74	1161							(MG/L	AS
DATE		(CFS)	MHOS)	(UNITES)	(UFG C)	(J\841)	ATIONI	AS H)	CACDE
oct									
ii	1115	90	329	7.5	11.0	10.6	96	.0	3.0
NOV	• • • •	711	374	747	11.0	117.55	71.	• 10	3.0
								_	
07	1530	478	203	7.0	A.5	12.8	109	.0	6.0
DEC									
10	1015	2040	125	7.1	.5	14.9	103	٠,	4.0
JAN									
15	10 10	F1300	157	7.0	.0			- 1	2.0
FFR									
A4	1015	F540	176	7.4	.0	14.0	94	.0	5.0
MAN									
86	0930	122	177	6.6	.5	12.7	AA	.0	7.0
APR									
02	8950	728	142	7.2	4.5	11.6	90	.0	7.6
MAY									
15	1000	755	151	7.7	14.5	A. A	85	. 1	2.0
MM,								• •	• • • •
10	1900	1070	159	7.1	14.0	9.2	97	.0	5.0
.MA			• • •		••		•	• "	***
10	0920	210	238	7.2	22.0	7.1	Al	.1	7.0
AHG				, , ,	***		***	• • •	7.40
97	1015	189	311	4.4	19.0	7.9	84	-1	13
SEP		144	311	r.n	14.0	7.4		• 1	1.3
11	1550	110	277	7.9	19.5	7.4	84		
	. 220	114		7.7	14.7	/, "		.0	2.0

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued 01520500 - TIOGA RIVER AT LINDLEY NY WATER QUALITY DATA, WATER YEAR OCTORER 1974 TO SEPTEMBER 1975

NATE	BICAR- RONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	ALKA- LINITY (MG/L AS CACO3)	CARRON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE. DIS- SOLVFO (MG/L AS CL)	NITRO- GEN+ NITRATF TOTAL (MG/L AS N)	NITRO- GEN+ NITRITE TOTAL (MG/L AS N)	NITRO GEN• NOZ•NO TOTAL (MG/L AS N)
001	44	0	36	2.2	93	18	.18		
NOV 07	52	n	43	A.3	41	11	.32		_
DEC					31				
10 JAN	19	0	31	2.3		5.5	.70		
IS FER	5.5	0	20	3.5	**	4.5	.86		•
04 Mar	28	0	24	1.9	49	A.0	. 46		-
06 APR	56	0	27	10	48	A.0	1.2		-
SO	29	0	23	7.9	39	7.0	.72		-
15 July	35	0	31	1 • 1	32	5.5	.23	.01	•2
10 JUL	40	0	32	5.1	33	5.0	.70		-
10	57	0	47	5.8	48	14	.47		-
07 SEP	56	ŋ	45	23	A)	18	.31	.01	• 3
11	56	0	49	1+3	63	16	-11		-
DATE	NITRO GEN. AMMONI TOTAL (MG/L AS N)	GEN.	MONIA	NITRO-	- PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P))
0CT)) .16	. 25						
NOV									•
07									
10				• • •	.07	-	•		
FER					•03				
04			_		• 02		P F0		•
04 APR				1.5	•03	.02	? 14	35	
02 May				. 96	•03	. 11	? 15	29	
)5 JUN		.12	-13	.37	•03	.01	1 17	27	
in	• • • • • • • • • • • • • • • • • • • •	.31	. 32	1.0	.06		5 51	147	
10	• • • • • • • • • • • • • • • • • • • •	.44	-51	.98	.OB	.03	3 34	19	
07	. 04	.18	.27	.54	.08	.01	1 14	7.1	
11		.14	-14	. 27	•05	•01	l FO		•

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued

01520500 - TIOGA RIVER AT LINDLEY MY

WATER QUALITY DATA. WATER YEAR OCTORER 1974 TO SEPTEMBER 1975

		ALUM- INUM. Total Recov-	ALUM- INUM. DIS-	ARSFNIC	ARSENIC DIS-	CADMIUM TOTAL RFCOV-	CADMIUM DIS-	CHRO- MILIM. TOTAL RECOV-	CHRO- MIUM, DIS-
		ERABLE	SOLVED	TOTAL	SOLVED	ERABLE	SOLVED	FRABLE	SOLVED
	TIME	(UG/L	(UG/L	(UG/L	(UG/L	(UG/L	(UGVL	(US/L	106/1
DATE		AS AL)	AS AL)	45 AS)	AS AS)	AS CD)	AS CDI	AS CR)	AS CR)
						-			
OCT	1115	230				_		_	
11	1112	230		<1		0		0	
07	1530	540		1		0		10	
DEC						•		• •	
10 JAN	1015	920		0		n		0	
15	1030	670		1		1		0	
FEB						•		•	
04	1015	470		2		n		0	
MAR 86	0930		30		0		0		
APR			.,0		·		Ū		0
02	0950		50		1		0		0
MAY 15	1000		50		1		0		
JUN	1000		50				U		10
10	1800		60		0		0		0
JUL 10	0920	950	70		_	_		_	
AUG	0920	970	70	1	0	0	0	0	<10
07	1015		10						
SEP	1550								
11	1770	500	100					••	
									MANGA-
	COMALT.		COPPER.		TDOM.		4.540		
	TOTAL	C0041 T		Connen	IRON.		LEAD.		NESE.
		CORAL T.	TOTAL	COPPER.		IRON.	TOTAL	LFAD+	TOTAL
	PECOV-	DIS-	RECOV-		RECOV-		PECOV-	015+	RECOV-
	ERABLE	SOLVED	ERABLE					SOL VED	ERABLE
	(UG/L	(UG/L	(UG/L	(UG/L	(UG/L	いしらくし	(UG/L	(UG/L	(UG/L
DATE	AS CO)	AS CO)	AS CU)	AS CUI	AS FE)	AS FE	AS PR	45 PB)	AS MN1
oct									
11	35		0		160		0		2000
NOV	_				_				
07 DEC	5		0		650		1		380
10	7		0		1200		5		360
JAN									
15 FEB	13		10		900		5		660
04	14		10		930		3		850
MAR	• •		• "		.30				.,,,,
06		13		10		310		2	
4PR 02		10		0		180		0	•-
MAY		••		,		1170	_	v	
15		4		0		70		1	
JUN 10		6		10		- 60		1	
JUL		•		10		911		•	
10	6	4	0	10	1700	90	15	1	610
AUG n7						. 20			
SFP									
11					460	20			830

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued

01520500 - TIGGA RIVER AT LINGLET MY

WATER QUALITY DATA, WATER YEAR OCTOPER 1974 TO SEPTEMBER 1975

	MANGA-	MERCURY			SELF-	SIL VFR.		? INC .	
	NESE.	TOTAL	MERCURY	SELF-	NIUM.	TOTAL	SILVER.	TOTAL	ZINC,
	-21G	RECOV-	015-	NIIIM.	D15~	HECOV-	DIS-	RECOV-	D15-
	SOLVED	ERARLE	SOLVED	TOTAL	SOLVED	EPARLE	SOLVED	FRABLE	SOLVED
	(UG/L	(UG/L	CUGZE	(UG/L	(UG/L	(UG/L	(UG/L	(UG/L	(UG/L
DATE	AS MNI	AS HG?	AS HG1	AS SE)	AS SE)	AS AGI	AS AGI	AS ZN)	AS ZN)
nct									
11		<.5		2		0		290	
MOV									
07		<.5		0	~-	0		80	
DEC									
10	~-	<.5		n		0		50	
JAN									
15		<.5		0	~-	0		50	
FEH									
04		<.5		0		0		110	
MAR									
n6	790		<.5		0		0		90
APR			_		_		_		
02	590		<,5		1		Đ		60
MAY			_				_		
15	390		<.5		0		0		40
JUN	4.50				_				
10	420		<.5		D		0		10
JUL	640				_				
10	560	<.5	<,5	0	0	0	0	60	20
A11G	1200								
SEP	1700							~-	60
11	800							70	4-
11	200				~-			70	60

WATER QUALITY DATA. WATER YEAR OCTORER 1975 TO SEPTEMBER 1976

OATH.	TIME	STREAM- FLOW. INSTAN- TANFOUS (CFS)	SPF- CIFIC CON- DUCT- ANCE (MICHO- MHOS)	P4 (UNITS)	TEMPEQ- ATURE (DFG C)	OXYGEN. DIS- SOLVED (MG/L)	OXYGEN. DIS- SOLVED (PER- CENT SATUR- ATION)	ACIDITY TOTAL HEATED (MG/L AS H)	ACIDITY (MG/L AS CACO3)
								-,	0.0007
07 07	1515	610	238	7.1	14.0	9.4	92	•1	6.0
Il	1530	1010	176	7.1	10.5	10.0	A9	.1	4.0
11	0845	1530	145	6.1	1.5	12.9	92	.1	5.0
07	1515	FSOO	210	7.2	.0	13.4	92	-1	5.0
05	1215	F660	171	7.4	.0	13.6	93	.1	3.0
44h	1245	F1100	147	6.7	1.5	13.3	95	.0	3.0
904 06	1425	925	153	7.5	A.a	12.5	105	.1	3.0
MAY MA	1350	475	200	7.4	14.5	9,8	95		3.0
07	1315	1010	156	7.5	16.0	9.2	92	-1	2.0
ли 14•••	1320	285	239	7.5	17.0	6.3	86	.0	2.0
A11G } } ****	1200	478	193	7.6	29.0	A.6	94	.0	2.0
7FP	1200	79	353	7.4	19.0	9.0	96	-1	3.0

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued

01520500 - TIOGA RIVER AT LINULT NY

WATER QUALITY DATA, WATER YEAP OCTOBER 1975 TO SEPTEMBER 1976

DATE	41CAR- HONATE (MG/L AS HCO3)	-PAD TRANOR LADA)	ALKA- LINITY (MG/L AS (ACO3)	CAPRON DIOXIDE DIS- SOLVED (MG/L AS CO2)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE: DIS- SOLVED (MG/L AS CL)	NITPO- GEN. NITHATE TOTAL (MG/L AS N)	NITRO- GEN+ NITRITE TOTAL (MG/L AS N)	NITHO- GFN+ NO2+NO3 TOTAL (MG/L AS N)
07	45	n	40	6.7	59	9.0	.93		
NOV 11	47	0	37	6.0	33	7.0	.41		
DFC 11	40	0	31	51	26	6.5	.52	.01	.53
JAN 07	42	0	36	4.2	47	۹.5			
75	34	n	26	2.2	41	A.5			
M&R (9	26	n	22	A.3	37	6.0	.70		
46	35	0	27	1.8	34	7.0			
MAY			34			7.1			
02	47	0	43	2.4	24	4.9	.31	.03	. 34
JHL 13 406	52	n	43	2.6	61	6.9			
11	42	o	74	1.7	49	6.9			
nH	39	0	32	2.5	110	14	.27	.01	.26
DATE	NITRO- GEN+ AMMONIA TOTAL IMG/L AS N)	GF N+	NITRO- GEN•AM- MONIA • ORGANIC TOTAL LWG/L AS N)	NITRO-	PHOS- PHORUS. Total (MG/L as P)	PHOS- PHORUS. ORTHO. TOTAL (MG/L AS P)	SEDI- MENT. SUS- PENDEN (MG/L)		
0CT 07	01	.30	.37	1.3	.06	.03	48	79	
11 DEC	.03	.61	.64	1.0	.13	.07	111	303	
11	•03	.25	.29	.A)	.07	-01	47	194	
JAN: 07 FER	, - -						21		
05 ⊬A₽		. 			·		Fn		
00	.06	.22	.28	.00	.05	•02	17	55	
06							4	10	
AUN.							9	11	
02	•04	.61	•65		•17	.04	157	428	
13							9	6.9	
(Fp							15	19	
0A	•03	.10	•13	•41	•02	•01	18	3.A	
DATE	TIME	ALUM- INUM- TOTAL RECOV- ERARLE (UG/L AS AL)	ALUM+ INUM+ DIS+ SOLVED (UG/L AS AL)	IRON+ TOTAL RECOV- ERAPLE (UG/L AS FE)	IRON. DIS- SOLVED (UG/L AS FE)	MANGA- NESF. TOTAL RECOV- ERARLE (UG/L AS MN)	MANGA- NESE+ DIS- SOLVED (UG/L AS MN)	7INC+ TOTAL RECOV- FRABLE (UG/L AS 7N)	ZINC+ DIS+ SOLVED (UG/L AS ZN)
0CT	1515	340	120	7100	70	1400	1400	120	90
NOV 11	1530	2600	30	4700	120	520	450	130	70
DEC	0845	1200	30	3000	40	260	250	40	30

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued

01000500 - IJOGA RIVER AT LINDLEY NY

WATER QUALITY HATA, WATER YEAR OCTORER 1976 TO SEPTEMBER 1977

'JATt	7[++	STHEAV- FLOW- IPSTAR- TABLEGUS (CFS)	SDF = CLEFC CDN= DHCT= ANCE CHECTO= HHDS1	рь (un(15)	TEMBE CO	0xY6F4+ 615- 50F9F0 (MG/L)	OXYGEVE PIS- SOLVED (PFW- CENT SATHM- ATION)	ACIDITY JAIDT ACIDITA	ACIDITY (MF/L AS CACO3)	RICAR- RONATE (MG/L AS MCO3)	CAR- RONATE (MG/L AS CO3)
07	1215	11.4	144	ñ.4	14.5	4.4	93	•0	.0	67	1
10	1215	444	204	7.1	1.5	14.0	93	.1	4.0	41	0
) ጋ•••• በትር	1010	Faso	191	h.5	• 0	13.6	6.6	• 1	7.0	43	0
JA11 13	1145	1 1 16	272	4.9	. n	12.6	86	. 4	13	47	0
FF 1	LO 11)	F 9 2	397	h.h	•0	12.3	P4	٠, ٦	14	50	0
иды •••РО	A445	1376	155	h.4	1.0	13.4	94	.1	5.0	17	0
14	1000	102	1#4	7.0	13.0	10.0	94	.1	4.0	30	0
PAY	1930	562	1 A 3	5.5	11.5	10.5	94	.2	A.0	26	0
بالار 10	11 40	+ 180	240	1.7	12.5	4.4	9,2	. 1	4.0	5)	0
JIIL 117	1015	1400	168	7.4	20.5	7.4	A4	.1	4.0	37	n
99	1100	104	137	1.9	23.5	4.0	93	.0	5•0	67	n
SFP 14	1010	p 45	240	1.7	15.5	9•1	91	• 0	2.0	66	0
DATE	A(# 4 m LT+ 11 Y (MOZL AS CACO 3)	CAUSIDE DITESTOR DITESTOR DISTOR	SHEFATE 015- 59 VED 19671 AS 5043	CHLO- HTDE+ HTS- SOLVEO (MGZL AS (1)	NTTPO~ SFA+ NTBATF TOTAL (MGZ(AS H)	NITHO- GFN. NITHATE DIS- SOLVED (MG/I) AS (4)	NITPO- CEN. NITHITE TOTAL (MEXL AS N)	NITPO- GEN. NITRITE OLS- SOLVED (MGVL AS N)	NTTPO- GFN. NG2+NG3 TOTAL (MG/L AS N)	NITRO- GEN+ NO2+NO3 DIS- SOLVEN (MG/L AS N)	NITRO- GEN- AMMONIA TOTAL (MG/L AS N)
OCT											
07 N(IV	42	.4	13.5	1.4							
10	74	5.2	4.0	4.2		~-					
IS Jan	30	22	40	4.4	. 44	~-	•01		.67		•0>
13 FF7	14	72.4.	67	14		~-					•-
 ₽ Ą ₽	41	20	74	1,							~-
V55 U4	14	4.1	34	7.3	.73		•115		.78		.06
la way	عر	4.1	42	7.7							
۵۹۰۰۰ پران	21	14	21	11							
10 Juli	4 2	1.6	43	14	. 3,4		.03		.34		• 02
07	3-1	1.4	دم	5.5							
74	4,-	1.3	15	4.4			••				
14											

Table 24.--Water-quality data collected from September 1973 to September 1978--Continued

01520500 - TIOGA RIVER AT LINDLEY NY

WATER CHALITY DATA. WATER YEAR OCTORER 1976 TO SEPTEMBER 1977

DATE	NITHU- REM- AMMUNIA DIS- SOLVED (MG/L AS N)	NITHO- GFN. OPDAMIC TOTAL (MG/L AS M)	NITRO- GEN: ORGANIC OIS- SOLVED (MG/L AS N)	NITRO- GEN.AM- MONIA + OPGANIC TOTAL IMG/L AS N)	NITRO- GEN+AM- MONIA + ORGANIC OIS+ (MG/L AS N)	NTTHO- GEM+ TOTAL (MG/L AS M)	PHOS- PHOHUS. TOTAL (MG/I AS P)	PHOS- PHORUS: DIS- SOLVED (MG/L AS P)	PHOS- PHOPUS. ORTHO. TOTAL (MG/L AS P)	SEDI- MENT: SUS- PENDED (MG/L)	SEUI- MENT DIS- CHARGE. SUS- PENDED (T/DAY)
001											
07										17	3.8
10										22	56
∩⊁ C 15		.16		-18		.85	.03		.01	6	
JAN							•		• • •		
13 FF3										Εn	
09										,	
μΔ <i>Ω</i> 09		. 34		.40		1.2	.04		.01	37	137
APO		• / •		• • • • • • • • • • • • • • • • • • • •		1.,	• 14		•91	37	1 17
14										12	23
03										11	17
JUN										• •	
ì0 J∀L		.21		.23		.62	•01		.00	21	
07										1230	4650
AUG											
19 SEP									<i>.</i>	39	35
16	.04		.64		.72			.02		85	62

